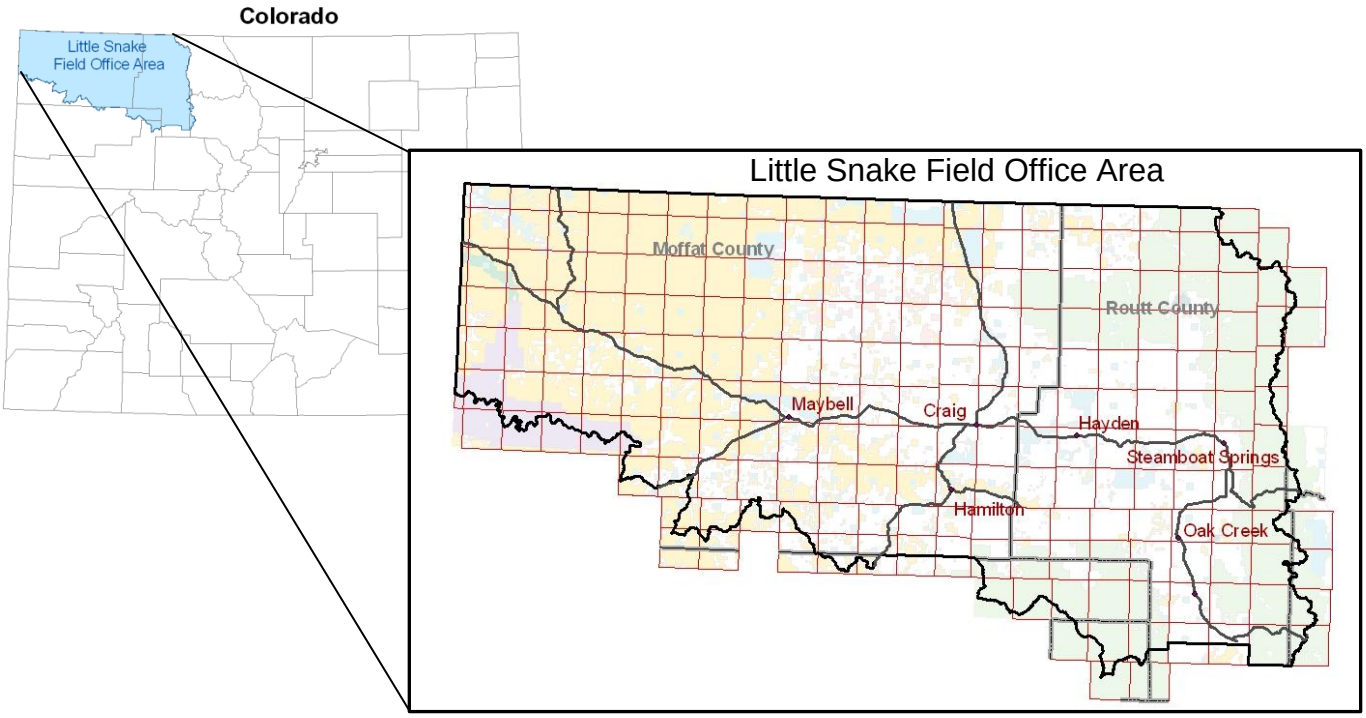
U.S. Department of the Interior
Bureau of Land Management
Little Snake Field Office
455 Emerson Street
Craig, CO 81625-1129

ENVIRONMENTAL ASSESSMENT

EA NUMBER: DOI-BLM-CO-N010-2009-0025-EA

PROJECT NAME: Little Snake Field Office Integrated Pest Management Plan

LEGAL DESCRIPTION: All public lands administered by the Little Snake Field Office BLM



PLAN CONFORMANCE REVIEW: The Proposed Action and Alternatives are subject to the following plan:

Name of Plan: Little Snake Resource Management Plan and Record of Decision

Date Approved: April 26, 1989

Results: As required by the U.S. Department of Interior regulations (43 CFR 1610.5-3) the proposed action and analyzed alternatives are subject to and in conformance with the current Little Snake Field Office (LSFO) Resource Management Plan (1986).

The proposed action is in conformance with management objectives throughout the LSFO. This includes:

- environmentally sound exploration and development of coal, oil and gas, and other minerals exploration and development (p. 6-10, 1989 LSFO RMP);
- improving range conditions in terms of species diversity, and abundance as well as increasing carrying capacities for both livestock and wildlife (p. 10, 1989 LSFO RMP);
- maintaining rangelands that are at their desired plant communities (p. 12, 1989 LSFO RMP);
- protecting, conserving and managing Threatened/Endangered, Candidate, and sensitive species plants (p. 14, 1989 LSFO RMP);
- preventing deterioration of soil conditions and stabilize and rehabilitate areas where accelerated erosion and runoff have resulted in unacceptable resource conditions (p. 16, 1989 LSFO RMP).

NEED FOR PROPOSED ACTION:

This Environmental Assessment (EA) has been prepared to analyze the implementation of the Integrated Pest Management Plan proposed by the Little Snake Field Office (LSFO). The EA tiers to the *Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement, Record of Decision* (BLM, 2007) (*PEIS* (BLM, 2007)) which analyzed the impacts of using herbicides (chemical control methods) to treat weeds and management vegetation on public lands. This EA will include a site specific assessment of the applicability of the national PEIS and evaluates procedures and tools available for weed and vegetation management on public land in the LSFO area. In addition, this EA incorporates by reference the *Vegetation Treatments on BLM Lands in 17 Western States Programmatic Environmental Report* (PER) (BLM 2007), which evaluated the general effects of non-herbicide treatments (i.e., biological, physical, cultural, and prescribed fire) on public lands. The PEIS identifies impacts to the natural and human environment associated with herbicide use and appropriate best management practices (BMPs), standard operating procedures (SOPs), mitigation measures, and conservation measures for avoiding or minimizing adverse impacts. The PER describes the environmental impacts of using non-chemical vegetation treatments on public lands.

The proposed Integrated Pest Management (IPM) Plan for the LSFO is needed to reduce the adverse impacts associated with an increase in noxious and invasive weeds on BLM administered lands within the field office boundary. The proposed IPM Plan also provides a mechanism for evaluating a range of treatment options or combination of options to eradicate or control weed populations on public and private lands throughout the LSFO resource area. The plan would be implemented in accordance with Federal and State laws, regulations, and policies and the LSFO land use plan.

Multiple laws mandate the control of invasive and noxious weeds. The *Federal Land Policy and Management Act of 1976* directs the BLM to manage public lands "in a manner that will protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resource and archeological values." Additionally, Executive Order 13112, Invasive Species, directs federal agencies to prevent the introduction of invasive species and provide for their control, to minimize the economic, ecological, and human health impacts that invasive species cause. The *Federal Noxious Weed Act of 1974* established and funded an undesirable plant management program, implemented cooperative agreements with state agencies and established integrated management systems to control undesirable plant species. The *Standards for Public Land Health and Guidelines for Livestock Grazing Management (Colorado, 1997)* establish a system for evaluating the health of public lands and include an assessment of the plant community to determine presence of noxious weeds or invasive plants in rating overall site health. DOI manual 517 (Integrated Pest Management) and BLM Manual 9015 (Integrated Weed Management) provide guidance and policy for weed management on public lands.

In addition to federal mandates, Colorado state law states "It is the duty of all persons to use integrated methods to manage noxious weeds if the same are likely to be materially damaging to the land of neighboring landowners." (Title 35, Article 5.5**,** Colorado Noxious Weed Act, Sections 35-5.5-104 to 35-5.5-118). Additionally, "It shall be unlawful to intentionally introduce, cultivate, sell, offer for sale, or knowingly allow to grow" any weed designated on the state noxious weed list (Attachment #1). The LSFO utilizes this state list to manage weed infestations.

PUBLIC SCOPING PROCESS: The action in this EA is included in the NEPA log posted on the LSFO web site: http://www.blm.gov/co/st/en/BLM_Information/nepa/lsfo.html.

BACKGROUND:
Weed invasion continues to be a primary concern in western lands. These noxious weeds and invasive plants compromise the ability to manage BLM lands for a healthy ecosystem. These weed species are typically very aggressive and have the ability to dominate many native sites displacing native plants, reducing habitat and forage for wildlife and livestock, increasing potential for soil erosion, reducing water quality and quantity, losing long-term riparian area function, increasing cost of controlling invasive plants (dollars spent), and increasing cost to maintaining transportation systems and recreation sites. Additionally, vegetation management can be used to improve plant communities to meet specific objectives. Historically, the LSFO has treated approximately 1,500 acres of weed infestations annually, focusing on large scale infestations, road ways, and special project areas through cooperative agreements. The majority of these treatments have been chemical control. Oil and gas industry activities and related permit holders are required to control noxious weeds at these sites to maintain compliance. Some basic inventory data is available on invasive species present within the LSFO area as a result of Land Health Assessments and general plant inventories; however the location and actual number of infested acres by species and specific location within the LSFO is unknown. Attachment #1 identifies weeds known to occur in the LSFO. Future inventory data may modify this list.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

The *PEIS* (BLM, 2007) assessed five alternatives:

1) **Continue present herbicide use**
   Under this alternative the BLM would continue to use 20 herbicide active ingredients currently approved for use in 14 western states under earlier EIS RODs.
2) **Expand herbicide use and allow for use of new herbicides in 17 western states (Preferred Alternative)**
   This alternative represents the treatment of vegetation using 18 herbicide active ingredients in 17 western states (including Alaska).
3) **No use of herbicides**
   Under this alternative the BLM would not be able to treat vegetation using herbicides and would not be able to use new chemicals that are developed in the future. The BLM would be able to treat vegetation using fire, and mechanical, manual, and biological control methods.
4) **No aerial application of herbicides**
   This alternative is similar to the Preferred Alternative in that it represents the treatment of vegetation using herbicides in 17 western states, including Alaska, and use of the same active ingredients as allowed under the Preferred Alternative. Under this alternative, however, only ground-based techniques would be used to apply herbicides (no aerial applications of herbicides would be allowed) to reduce the risk of spray drift impacting non-target areas.
5) **No use of sulfonylurea and other acetolactate synthase-inhibiting active ingredients**
   Under this alternative the BLM would not use sulfonylurea and other acetolactate synthase-inhibiting active ingredients approved in the earlier RODs, which are chlorsulfuron, imazapyr, metsulfuron methyl, and sulfometuron methyl.

The Record of Decision following this PEIS selected the preferred alternative (2).

This EA tiers to the analysis contained in the *PEIS* (BLM, 2007) for the 18 herbicide active ingredients listed under the Preferred Alternative above. The use of non-herbicide control methods is discussed in the *Vegetation Treatments, Programmatic Environmental Report* (BLM, 2007). This EA will incorporate by reference the chemical, biological and mechanical control methods for noxious weeds and invasive plants, including invasive native species. An additional focus of this EA is the evaluation of weed control methods and implementation of the LSFO Noxious Weed Prevention Plan (Attachment #2).

Proposed Action

Weed control in the Little Snake Field Office would be conducted using Integrated Pest Management (IPM) methods utilizing biological, mechanical, chemical and preventive methods as applicable for each treatment site. Additional planning guidance would be directed by the *Partners Against Weeds: An Action Plan for the Bureau of Land Management (January, 1996).*

Integrated Pest Management
Under this alternative, weed treatment methods in the LSFO would be evaluated through an IPM approach that includes the effectiveness, feasibility and environmental considerations associated with the treatment. No single management technique is perfect for all invasive plant control situations. Multiple management actions may be required to obtain effective control. IPM is an approach for selecting methods for preventing, containing, and controlling invasive plant species in coordination with other resource management objectives to achieve desired vegetation condition. Selection of treatment methods considers the biology of the invasive plant species, site location, proximity to water, size of infestation, social factors or additional issues affecting the treatment site and the effect on non-target organisms. Typically an IPM approach is the most effective for a weed control program.

Without the use of herbicides weed control does not always meet the purpose and immediate need for action to manage noxious weeds and invasive plants. Research and practical evidence have demonstrated that herbicide treatments have often been found to be most effective for weed infestations in the LSFO. One of the most effective non-herbicide strategies for invasive plant control is to incorporate cultural practices to reduce the potential of invasive plant establishment. The *Little Snake Field Office Noxious Weed Prevention Plan* (Attachment #2) addresses cultural practices that can be used to prevent introduction of weedy species.

The LSFO IPM approach would be applicable to weed management activities associated with implementation of resource management decisions described in the current and future LSFO RMPs. To meet these management objectives, the Proposed Action includes prevention and early detection, inventory, treatment, education, restoration, and monitoring.

Prevention and Early Detection
Using an early detection and rapid response strategy can be a very effective tool for invasive plant management. This strategy refers to the immediate treatment of newly discovered infestations, particularly those that are small or new to an area. This prevention type method is integral to an effective IPM program and is generally recognized as the most effective and economic form of weed management. To prevent the spread of noxious weeds a range of BMPs would be incorporated into project planning.

Inventory and Mapping
Information on the presence, location and distribution of noxious weeds is fundamental to management efforts. The LSFO BLM weed inventory data has traditionally been coordinated through other inventory and assessment efforts. Under the Proposed Action, data would be compiled in a central electronic database with additional concentrated inventory efforts. Mapping an infestation provides analytical information about the extent of infestation, possible mode of spread, potential areas close by that dictate protection and effectiveness of control methods. Once collected inventory data would be used to target treatment areas and track infestations over time. The LSFO planning area size (1.3 million acres) and funding constraints has limited an inclusive inventory thus far. Priorities would be established to focus inventory efforts.

Treatment Methods

Proposed treatment methods include manual, mechanical, biological, and chemical techniques with selective application, spot spraying, or broadcasting from the ground or aerially. These treatments are described in Table 1. Table 2a provides an outline of the preferred method of treatment summary for the proposed action. Method of treatment would be chosen dependent upon:

- treatment objectives (eradication or reduction)
- accessibility, topography, and size of the treatment area
- characteristics of the target species and the desired vegetation
- location of sensitive areas and potential non-target impacts in the immediate vicinity
- cost effectiveness and equipment limitations
- condition of treatment area at the time of treatment (vegetation, soil moisture, etc.).

This alternative would provide for weed control methods to be applied to a variety of noxious weed and invasive plant infestation sites in the LSFO. This would include those within a grazing allotment, sensitive species habitat, along a BLM road or along a pipeline reclamation route. In addition, control of undesired native vegetation on rangeland, industrial locations and associated infrastructures may also be necessary to meet various management objectives. Some sites may require invasive species control and/or elimination of vegetation (bare ground) to eliminate fire hazards. Road right-of-ways, for industrial access or BLM transportation routes, may also require vegetation control to suppress vegetation that restricts vision or poses a safety hazard.

Table 1. Summary of Potential Treatment Methods *

Manual Control
Description: Involves the use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous and woody species. Treatments include cutting undesired plants above ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; cutting at ground level or removing competing plants around desired species; or placing mulch around desired vegetation to limit weed germination and growth. Tools include, but are not limited to, handsaws, axes, shovels, rakes, machetes, grubbing hoes, mattocks, Pulaskis, brush hooks, and hand clippers, as well as motorized chainsaws and power brush saws.
Effectiveness: Manual treatments are most effective when weed infestations are small and complete removal of the roots is possible. Manual treatments work well for annual or biennial species with tap roots or shallow roots that do not resprout from tissue remaining in the soil. Sandy or gravelly soils allow for easier root removal. Repeated treatments are often necessary due to soil disturbance and residual weed seeds in the seed bank. Manual control can be used with minimal impacts and is useful in sensitive habitats. However, manual treatments are labor intensive compared to other treatment methods such as herbicide and biological control.

Mechanical Control
Description: Weed control accomplished by mowing, cutting, brushing, trimming or weed-eating. Mechanical treatment can reduce seed production and restrict invasive plant growth, especially in annuals cut before they flower and set seed. However, some species re-sprout vigorously when cut, replacing one or a few stems with many that can quickly flower and set seed. Typical tools associated with this method of treatment may include a disk, mower, drag or harrow pulled or motorized by a truck, tractor or ATV.
Effectiveness: These treatments are often used as primary treatments to remove aboveground biomass in combination with herbicide treatments to prevent re-sprouting, or as follow up treatments to treat target plants missed by initial herbicide use. Also, mowing and cutting can be used, in conjunction with herbicide treatments, to reduce vegetative materials and to promote vigorous growth in order to decrease the amount of herbicide application needed and to increase herbicide effectiveness. This method potentially creates a larger disturbance area and is typically part of a more complex management or treatment plan. Additional resource clearances may be required for this type of treatment. Mechanical treatments, such as plowing or disking, that remove vegetation would avoid active floodplain areas, streambanks and/or the presumed waterways to reduce potential soil erosion.
Biological Control
Description: Biological control involves the intentional use of domestic animals, insects, nematodes, mites, or pathogens that weaken or destroy vegetation. The use of domestic livestock to control weeds requires prescribed grazing in which the animal type, number of head and duration of grazing are specifically designed to control a particular plant while minimizing impacts to desirable vegetation. Other biological control agents work to reduce infestations by defoliation, foraging on seeds, burrowing or generally weakening invasive plant production and vigor.

Effectiveness: Biological control agents are only available for a limited number of applications. This method can be effective for large populations of weeds, but would not completely eradicate a weed population. Biological control agents can take many years to establish and bring about the desired level of control. This method can be useful in reducing the initial size or density of a weed infestation to make other treatments more feasible. Biological control agents such as insects, nematodes, mites or pathogens, approved for use by the BLM, have undergone rigorous testing by the USDA Agricultural Research Service to ensure they are host specific and would feed only on the target plant(s). Prior to the release of a new agent, an environmental analysis is prepared by APHIS (Agricultural Plant Health Inspection Service). Once a biological control has been approved for release, its release can only occur in states that have been covered under the environmental assessment. The use of biological control agents would be conducted in accordance with BLM procedures in the *Use of Biological Control Agents of Pests on Public Lands* (BLM Manual 9014).

A Biological Control Agent Release Proposal (BCARP) must be approved by the BLM State Office prior to releasing agents on BLM lands. A BCARP is an internal document that identifies the type of biological control agent, collection origin, number of specimens planned for release, planned release date, number of releases, target pest species and estimated treatment acres. A BCARP also includes a discussion of sensitive aspects and precautions and mitigations that will be taken to minimize impacts to non-target vegetation. A Biological Control Agent Release Record (BCARR) must be completed within 24 hours after release of the biological control. These records must be kept for 10 years. Information on the BCARR includes location of release, actual area (acres) of release, weather conditions, and weed species treated.

Chemical Control

Description: Chemical control involves the use of herbicides to kill or suppress target plants and chemicals applied with herbicides that improve their efficacy (adjuvants). Herbicides can be used selectively to control specific vegetation types or non-selectively to clear all vegetation in a particular area. Spot applications are effective for small infestations, areas inaccessible by vehicle, or areas where minimizing potential impacts to non-target plants is desired. This includes spraying from a backpack unit or spray bottle or wiping (wicking) directly onto the foliar tissue or stump. In remote areas and areas where mechanized equipment is not appropriate (e.g., wilderness areas and wilderness study areas), herbicides may be carried and applied using pack animals. Larger weed infestations in highly disturbed areas with good accessibility can be treated by broadcast sprayers mounted on ATVs or trucks. Oil and gas pads, pipeline corridors, roadsides and some rangeland can be effectively treated in this manner. Some herbicides could be applied aerially with helicopters or fixed-wing aircraft for large infestations of weeds in areas where it's not economically and/or physically feasible to treat on the ground.

Herbicide use may be limited by label instructions or BLM approvals. The *PEIS* (BLM, 2007) prohibits aerial application of Sulfometuron methyl. Additionally, through the *PEIS* BLM limits the use of chlorsulfuron and metsulfuron methyl to areas with difficult land access, where no other means of application are possible.

Prior to herbicide application a Pesticide Use Proposal (PUP) must be approved by the BLM State Office. A PUP is an internal document that includes the type of herbicide, application rate, application dates, number of applications, and estimated treatment acres. A PUP also includes a discussion of sensitive aspects and precautions and mitigations that will be taken to minimize impacts to non-target vegetation. The LSFO would attach a list of summarized requirements to each approved PUP (Attachment #3) to further inform pesticide applicators of requirements associated with the use of herbicides on public land. All applicators must provide and maintain a current certified pesticide applicator's license. The pesticide applicator would fill out a Pesticide Application Record (PAR) within 24 hours of applying herbicides on BLM lands. The pesticide applicator must keep these records for 10 years according to state law. Information on the PAR includes location of application, what and how much herbicide was applied, weather conditions, equipment used, weed species treated, and number of acres treated. Applicators are required to turn in these records to the LSFO at the end of each year. Only those formulations on the BLM approved herbicides and approved adjuvants list (Attachment #4) could be applied on public lands in the LSFO at the approved rates (Attachment #5). These lists were a product of the *PEIS* (BLM, 2007) and may be updated over time.
Effectiveness: The proper use of herbicides can be a very effective method for controlling persistent weeds. Not all herbicides are equally effective on all weeds, nor can every herbicide be used in every situation. Herbicides can damage or kill non-target plants and can be toxic or cause health problems in humans, livestock, and wildlife. Weed populations may develop a resistance to a particular herbicide over time. Herbicide control is less labor intensive than manual methods and is able to more effectively control larger weed infestations.

** Information is modified from Vegetation Treatments Using Herbicides in 17 Western States, PEIS* (BLM, 2007).

Minimizing Herbicide Potential Adverse Effects

Herbicide treatments would comply with U.S Environmental Protection Agency (EPA) label directions and follow BLM procedures outlined in BLM Handbook H-9011-1 (Chemical Pest Control), and manuals 1112 (Safety) and 9015 (Integrated Weed Management). Herbicide applications would adhere to all state and federal pesticide laws. All applicators that apply herbicides on lands administered by the LSFO would comply with the application rates, use and handling instructions on the herbicide label and, where more restrictive, the rates, use and handling instructions developed by the BLM in the *PEIS* (BLM, 2007) (Attachment #4 and Attachment #5).

To reduce the potential adverse effects of herbicides on environmental and human resources the *PEIS* (BLM, 2007) includes *Standard Operating Procedures*. Additional *Mitigation Measures* were also developed to address risks to the environmental and human resources from the use of

herbicides. Methods analyzed in this EA and subsequent herbicide applications would comply with these *Standard Operating Procedures* and *Mitigation Measures*. These documents have been modified for the LSFO area.

The *PEIS* (BLM, 2007) analyzed the effects of using herbicides for treating vegetation on public land in the western United States. The *Record of Decision's* preferred alternative approved the use of the following 18 herbicide active ingredients:

2,4-D	hexazinone	imazapic*
bromacil	imazapyr	diquat*
chlorosulfuron	metsulfuron methyl	diflufenzopyr* (in formulation with dicamba)
clopyralid	picloram	
dicamba	sulfometuron methyl	
diuron	tebuthiuron	fluridone*
glyphosate	triclopyr	

**These chemicals have not previously been approved for use in the LSFO.*

Each of these herbicide active ingredients could also be used in the LSFO resource area. An analysis of the impacts and risks to humans and non-target plants and animals, and the toxicity and environmental fate summaries of these herbicides can be found in the *PEIS* (BLM, 2007).

The ability to use imazapic as part of the Proposed Action is of particular benefit because it is the only approved herbicide that effectively controls cheatgrass. The herbicide Overdrive® (dicamba + diflufenzopyr) is another important addition to the approved list. The other two newly added herbicides (diquat and fluridone) are primarily for use in aquatic sites and therefore not likely to be used in the LSFO, where aquatic weeds are not a significant issue.

Education

The final treatment strategy to be included in the LSFO IPM program is that of education and awareness. The focus of this component is to generate internal and external support for weed control by increasing awareness of noxious and invasive weeds and their impact on native ecosystems. Educating employees, partners, permittees and public land users about the effects of invasive species, identification of problem plants, and location of sites expands the control program. Outreach activities would be initiated to improve the utilization of those individuals and groups that are working or recreating on public lands in the LSFO area. The LSFO would also cooperate with other entities and community organizations to further outreach efforts.

Site Restoration and Revegetation

Pre and post treatment monitoring would determine areas that require re-establishment of native vegetation in areas that do not naturally revegetate or where undesirable bare ground remains. General reclamation guidelines would be in line with the Little Snake Field Office Resource Management Plan. Seeding or planting activities associated with a weed treatment project would be implemented with applicable cultural and biological clearances completed.

Monitoring
Monitoring is a key component of an IPM program to ensure mitigation measures are implemented and treatment methods are achieving their goals. *Appendix D* of the *PEIS* (BLM, 2007) is a detailed description of typical and acceptable monitoring methods and approaches. The Little Snake Field Office would utilize this guidance and implement monitoring internally and in cooperation with partners.

<u>Conservation Measures:</u> Considerations for T&E and Sensitive Species Habitat
Habitat for Threatened and Endangered wildlife species exists within the LSFO proposed treatment areas. Information in Table 2 below addresses potential treatment methods within these habitats.

Table 2.

Ute Ladies'-tresses	• Surveys will be conducted in potential habitat prior to weed treatments. • Herbicide treatments will not be conducted in areas where Ute Ladies'-tresses orchids may be subject to direct spray by herbicides during treatments. • Suitable buffer zones from the PEIS will be used to protect populations (confirmed or suspected) of Ute Ladies'-tresses to avoid negative effects from aerial drift, runoff, or wind erosion during and following treatments. • If herbicides will be used within 20m of occupied habitat (discovered by survey), further consultation would be conducted. • Applicators will be required to review, understand, and conform to the "Environmental Hazards" section on herbicide labels (this section warns of known pesticide risks and provides practical ways to avoid harm to organisms or the environment). • Applicators will be required to follow all SOPs for avoiding herbicide treatments during weather conditions that could increase the likelihood of aerial drift or surface runoff into non-target areas.
Colorado pikeminnow, Humpback chub, Bonytail and Razorback sucker	• Do not use diquat, fluridone, terrestrial formulations of glyphosate, or triclopyr BEE, to treat aquatic vegetation within the 100-year floodplain of the Yampa River. • Do not use glyphosate formulations that include R-11 or POEA. • Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats. Special care should be followed when transporting and applying 2,4-D, bromacil, clopyralid, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr. • Do not broadcast spray diuron, glyphosate, picloram or triclopyr BEE in upland habitats adjacent to the 100-year floodplain of the Yampa River. • Do not apply bromacil, diuron, tebuthiuron, or triclopyr BEE in upland habitats within ½ mile upslope of the 100-year floodplain of the Yampa River under conditions that would likely result in surface runoff.

Canada lynx and Black-footed ferret	• Where feasible, avoid use of the following herbicides in black-footed ferret or Canada lynx habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram and triclopyr. • Do not broadcast spray herbicides in Canada lynx habitat. • Do not broadcast spray clopyralid, diuron, hexazinone, picloram, or triclopyr in black-footed ferret habitat or in areas adjacent to black-footed ferret or Canada lynx habitat under conditions when spray drift onto habitat is likely. • Do not broadcast spray glyphosate in areas adjacent to Canada lynx habitat under conditions when spray drift onto the habitat is likely. • If broadcast spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or near black-footed ferret habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in black-footed ferret or Canada lynx habitat, utilize the typical, rather than the maximum, application rate. • Do not broadcast spray 2,4-D in black-footed ferret or Canada lynx habitat or within ¼ mile of black-footed ferret or Canada lynx habitat. Spot spray application of 2,4-D in black-footed ferret or Canada lynx habitat would be permitted. Use of a carrier dye would be required to ensure herbicide was only applied to target weed species. • Do not broadcast spray glyphosate at rates higher than 0.375 lbs of acid equivalent per acre in black-footed ferret habitat or in areas adjacent to black-footed ferret habitat under conditions when spray drift onto habitat is likely.
Mexican Spotted Owl and Western Yellow-billed Cuckoo	• Conduct surveys in suitable habitat for individual birds and their nests, roosts or feeding areas before developing a treatment plan. • Avoid treatment activities within 0.5 mile of known or suspected nest sites and roost sites during the period of seasonal use(s). • Do not aerially or broadcast spray 2,4-D within 0.25 mile of suitable habitat. • Do not use diuron within 0.5 mile of the Yampa or Little Snake River or Vermillion Creek. • Where feasible, avoid use of the following herbicides in suitable habitat: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr. • Do not aerially spray or broadcast spray clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr in occupied or suspected habitat, or in adjacent areas when aerial drift may occur. • If broadcast spraying bromacil, diquat, imazapyr or metsulfuron methyl in or adjacent to occupied or suitable habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of glyphosate, hexazinone, or triclopyr in occupied or suitable habitat, use the typical, rather than the maximum, application rate.

Greater sage-grouse	• Where feasible, avoid use of the following herbicides in brood-rearing habitat from June 1 – October 1: dicamba, diquat, diuron, clopyralid, glyphosate, hexazinone, impazapyr, picloram, triclopyr and 2,4D. • Where feasible, avoid broadcast spraying 2,4D, clopyralid, glyphosate, hexazinone, picloram, triclopyr, imazapyr and metsufuron methyl across large areas in greater-sage grouse habitat. If use of the above chemicals is absolutely necessary, apply at the typical, rather than the maximum, application rate. • If broadcast spraying bromacil, diuron, diquat, imazapyr, tebuthiuron in occupied habitat, apply at the typical, rather than the maximum, application rate. • If conducting manual spot applications of 2,4D, glyphosate, hexazinone, or triclopyr in occupied habitat, use the typical, rather than the maximum, application rate.

Alternative 1 - Continue Present Management (No Action): No changes to the current weed management program would be made with the exception of policy changes implemented by the *PEIS* (BLM, 2007). Under a previous Record of Decision of the *Vegetation Treatment on BLM Lands in 13 Western States EIS (BLM, 1991)*) the LSFO would be able to continue use of 17 herbicide active ingredients. Newly approved herbicides from the *PEIS* (BLM, 2007) would not be available for use (imazapic, diflufenzopyr, fluridone and diquat). An updated local IPM plan (Little Snake Field Office Noxious Weed Prevention Plan, Attachment #2) would not be fully implementable. The additional components of the LSFO IPM plan including Prevention and Early Detection, Inventory and Mapping, Education, Site Restoration and Revegetation, and Monitoring would be included under this alternative. Table 2a provides an outline of the preferred method of treatment summary for this alternative.

Alternative 2 – No Herbicide Use: This alternative would implement an IPM plan containing all the elements described under the proposed action with the exception of herbicides. No herbicide use would occur under this alternative. The LSFO would be able to treat invasive vegetation using mechanical, manual and biological control methods as described in the Proposed Action. An updated local IPM plan (Little Snake Field Office Noxious Weed Prevention Plan, Attachment #2) would not be fully implementable. Table 2b provides an outline of the preferred method of treatment summary for this alternative.

Alternatives Considered but Eliminated:

During the scoping of the *PEIS* (BLM, 2007) many issues identified were considered, but not analyzed and, subsequently, will not be analyzed in this EA. Alternatives specific to this EA that will not be analyzed in detail are discussed below.

Prescribed Fire - The use of prescribed fire to control invasive plants was not considered in this EA. When situations arise in the LSFO where prescribed fire is an appropriate IPM option, site specific NEPA would be completed.

Table 2a. Preferred Method of Treatment Summary for the LSFO – Proposed Action and Alternative One

Treatment priority is the same for both alternatives but different chemicals would be available for use.

Priority	Goal	Infestation	Preferred Method
Highest Priority: ▪ List A species ▪ List B or List C species new to LSFO ▪ Small infestations of List B species in areas of special concern (wilderness, ACECs, special status plant habitat)	Eradication	Individual plants or small groups.	Manual treatment, spot application of herbicide.
		Infestations near special status plants.	
		Small populations in areas with substantial desirable species.	Chemical treatment with selective herbicide.
		Small populations in areas with minimal desirable species.	Chemical treatment with non-selective herbicide, followed by revegetation.
Second Priority: ▪ Large infestations of List B species in areas of special concern ▪ List B species in areas with heavy use or more likely to spread (heavy recreational use, heavy use by livestock, or concentrated use by wintering big game)	Eradication, Control, or Containment	Individual plants or small groups.	Manual treatment; spot application of herbicide.
		Infestations near special status plants.	
		Small populations in areas with substantial desirable species or small populations in areas with minimal desirable species.	Chemical treatment with selective herbicide, or with non-selective herbicide followed by revegetation.
		Large infestations in areas with substantial desirable species or large infestations in areas with minimal desirable species.	Aerial or non-aerial chemical treatment with selective herbicide, or with non-selective herbicide followed by revegetation.
			Biological treatment, possibly with selective herbicides along perimeter.
Third Priority: ▪ List B species in areas with light use or less likely to spread (less recreational use, light or dispersed use by livestock or wintering big game) ▪ List B species in riparian areas, big game winter range, or wildland-urban interfaces ▪ Small infestations of List C species	Eradication, Control, or Containment	Individual plants or small groups.	Manual treatment; spot application of herbicide.
		Small populations in areas with substantial desirable species or small populations in areas with minimal desirable species.	Chemical treatment with selective herbicide, or with non-selective herbicide followed by revegetation.
		Large infestations in areas with substantial desirable species or large infestations in areas with minimal desirable species.	Aerial or non-aerial chemical treatment with selective herbicide, or with non-selective herbicide followed by revegetation.
			Biological treatment, possibly with selective herbicides along perimeters.
		Infestations of tamarisk and Russian-olive.	Manual treatment with herbicide applied to stumps, followed by control of resprouting. Revegetate areas as needed.
Lowest Priority: ▪ Large infestations of List C species	Control and Containment	Large infestations of List C species, including weeds dispersed throughout degraded rangeland.	Biological treatment (including prescribed grazing), possibly with selective herbicides along perimeters and localized revegetation or area-wide interseeding to resist reinfestation.

**The table describes preferred methods of treatment excluding variables. The selected treatment may vary depending on site-specific conditions.*

Table 2b. Preferred Method of Treatment Summary for the LSFO – Alt 2 (No Herbicide Use)

Priority	Goal	Infestation	Preferred Method
Highest Priority: ▪ List A species ▪ List B or List C species new to LSFO ▪ Small infestations of List B species in areas of special concern (wilderness, ACECs, habitat for special status plants)	Eradication	Individual plants or small groups.	Manual treatment.
		Infestations near special status plants.	
		Small populations in areas with substantial desirable species.	
		Small populations in areas with minimal desirable species.	
Second Priority: ▪ Large infestations of List B species in areas of special concern ▪ List B species in areas with heavy use or more likely to spread (heavy recreational use, heavy use by livestock, or concentrated use by wintering big game)	Eradication, Control, or Containment	Individual plants or small groups.	Manual treatment.
		Infestations near special status plants.	
		Small populations in areas with substantial desirable species or small populations in areas with minimal desirable species.	
		Large infestations in areas with substantial desirable species or large infestations in areas with minimal desirable species.	Biological treatment.
Third Priority: ▪ List B species in areas with light use or less likely to spread (less recreational use, light or dispersed use by livestock or wintering big game) ▪ List B species in riparian areas, big game winter range, or wildland-urban interfaces ▪ Small infestations of List C species	Eradication, Control, or Containment	Individual plants or small groups.	Manual treatment.
		Small populations in areas with substantial desirable species or small populations in areas with minimal desirable species.	
		Large infestations in areas with substantial desirable species or large infestations in areas with minimal desirable species.	Biological treatment.
		Infestations of tamarisk and Russian-olive.	Manual treatment, followed by revegetation and control of resprouting.
Lowest Priority: ▪ Large infestations of List C species	Control and Containment	Large infestations of List C species, including weeds dispersed throughout degraded rangeland.	Biological treatment (including prescribed grazing) and localized revegetation or area-wide interseeding to resist reinfestation.

**The table describes preferred methods of treatment excluding variables. The selected treatment may vary depending on site-specific conditions.*

AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, and MITIGATION MEASURES

CRITICAL RESOURCES

AIR QUALITY

Affected Environment: There are three Class 1 air quality areas located in Northwest Colorado. These are the Mt. Zirkel Wilderness, the Flat Tops Wilderness and the Eagle's Nest Wilderness. Dinosaur National Monument is a Class II area. These designations are made to ensure that the prevention of significant deterioration (PSD) increments for selected ambient air quality standards is not exceeded and to manage air quality related values (AQRVs) which include visibility (regional haze), atmospheric deposition (sulfur and nitrogen) and lake acidification.

Air quality in the planning area is considered to be in compliance with National and State Ambient Air Quality Standards. State and local air quality regulatory agencies do not have specific regulations for manual, mechanical, biological, or herbicide treatment methods.

Environmental Consequences, Proposed Action: Impacts to air quality are thoroughly covered in the *PEIS,* (BLM 2007) and the accompanying environmental reports. Regional air quality would not be affected by the Proposed Action. There would be short term and localized impacts resulting from the proposed treatments. Fugitive dust (particulate matter) and engine exhaust (CO, SO_2, NO_2, VOCs, and other minor pollutants) generated from vehicles traveling to and from treatment sites would result with treatments. Mechanical treatments would generate fugitive dusts from machinery working on the soil surface. Manual treatments would generate engine exhaust from hand held power tools. Chemical treatments could result in localized spray drift and volatilization of the chemicals associated with herbicide treatments moving offsite. These effects would be small in scale, temporary, and quickly dispersed throughout the vicinity of the treatment area with adherence to the appropriate SOPs. Provided SOPs are followed (Attachment # 6), and site-specific plans developed and reviewed before a treatment activity occurs, federal, state, and local air quality regulations would not be violated.

Beneficial impacts to air quality could result from the effective control of downy brome with the approval of the active ingredient imazapic. Total emissions of fugitive dust, ash, CO_2, CO, PM_{10} and $PM_{2.5}$, and VOCs, resulting from wildfires could be reduced in the long term using this herbicide for future range restoration efforts to reduce rangelands infested with downy brome.

None of the proposed treatments methods would result in emissions that exceed Prevention of Significant Deterioration thresholds or National Ambient Air Quality Standards.

Environmental Consequences, Alternative 1 (No Action): Under the No Action Alternative the impacts to air quality are the same as those that would be incurred by implementing the Proposed Action, except for the possible benefits that would not be provided in reducing the threat of downy brome infested rangelands through the use of imazapic.

Environmental Consequences, Alternative 2 (No Herbicide): This alternative would have the same impacts to air quality as the Proposed Action and Alternative 1, except that no herbicides would be applied to BLM lands. Chemical drift or volatilization of the chemicals associated with herbicide treatments moving offsite from BLM lands would not occur. This alternative would not prevent herbicides applications on adjacent private or State lands, where drift or volatilization could still occur.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 3/26/09

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: The BLM LSFO has four Areas of Critical Environmental Concern (ACECs) managed to protect and prevent irreparable damage to important historic, cultural, scenic values, and/or plant species. These ACECs are Limestone Ridge ACEC/RNA (Research Natural Area), Irish Canyon ACEC, Lookout Mountain ACEC, and Cross Mountain Canyon ACEC. Weeds can become established through wildlife, pack stock, or wild horses and burros that migrate in and out of ACECs carrying seed on fur or feces, through hikers and wildlife bringing in weed seeds on their clothing or equipment, or vehicles with seeds attached to their structure.

Environmental Consequences, Proposed Action: Adverse effects of control methods are covered in *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment* (BA). In general, potential effects to special status plant species would be similar to those described for vegetation as a whole. Long-term beneficial effects would be the reduction of noxious weed infestations and reducing the risk of catastrophic wildfires. Preventive methods in these areas would reduce the need for more aggressive treatment in the future and the need for emergency fire suppression, which can be very damaging. In addition, the reduction of hazardous fuels and noxious weeds on lands adjacent to or near ACECs would provide long-term benefits by reducing the likelihood that noxious weeds would spread into ACECs.

Environmental Consequences, Alternative 1 (No Action) and Alternative 2 (No Herbicide Use): Under these alternatives the presence of weed species may increase. There could be an increase in hazardous fuels and noxious weeds that could result in a catastrophic wildfire, degrading unique qualities associated with ACECs. Since many special status plant species are threatened by competition with non-native plants and other invasive species, non-native species could further degrade secure populations and eventually outcompete native special status species. Without the broadest spectrum of herbicides available or the use of no herbicide at all, treatment options are limited and may not be suited for use within the objectives of ACEC management.

Mitigative Measures: None

Name of specialist and date: Gina Robison, 2/23/09

CULTURAL RESOURCES

Affected Environment: Cultural resources in this region of Colorado range from late Paleo-Indian to Historic. For a general understanding of the cultural resources in this area, see *An Overview of Prehistoric Cultural Resources, Little Snake Resource Area, Northwestern Colorado*, Bureau of Land Management Colorado, Cultural Resources Series, Number 20, *An Isolated Empire, A History of Northwestern Colorado*, Bureau of Land Management Colorado, Cultural Resource Series, Number 2 and *Colorado Prehistory: A Context for the Northern Colorado River Basin*, Colorado Council of Professional Archaeologists.

Environmental Consequences, All Alternatives: The proposed project has not undergone a Class III cultural resource survey. Class III cultural resource survey is not necessary for the alternatives involving spraying chemicals on foot. Truck/ATV chemical applications, mechanical treatments, drill seeding, certain hand treatments and other similar projects have the potential to impact cultural resource sites and must be reviewed on a project-by-project basis prior to initiation. This occurs during the PUP process.

Mitigative Measures: The following standard stipulations apply for this project:

1. All projects involving seeding, mechanical treatments, or hand treatments must be reviewed by cultural resource staff to ascertain necessary actions under Section 106 of the National Historic Preservation Act of 1966.

2. The applicator is responsible for informing all persons associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the applicator is to immediately stop activities in the vicinity of the find and contact the authorized officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator:

- Whether the materials appear eligible for the National Register of Historic Places;
- The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and
- Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

3. If the applicator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the applicator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the applicator will then be allowed to resume operations.

Name of specialist and date: Robyn Watkins Morris, 2/12/09

ENVIRONMENTAL JUSTICE

Affected Environment: The vast majority of public lands in the project area are located away from population centers in Moffat and Routt Counties, with scattered clusters of dwellings or isolated dwellings occurring on adjacent private lands. Ranching, farming, coal mining and oil and gas development are the primary economic activities in outlying areas. Minorities, including Native Americans, constitute about 15% of the population in Moffat County. Minorities, including Native Americans, constitute about 6% of the population in Routt County. (U.S. Census data, 2000-2006)

Environmental Protection Agency environmental justice guidelines for evaluating potential adverse environmental effects of projects require specific identification of minority populations when either: 1) a minority population exceeds 50% of the population of the affected area or 2) a minority population represents a meaningfully greater increment of the affected population than that of the population of some other appropriate geographic unit.

Environmental Consequences, Proposed Action and Alternative 1 (No Action): Treatment areas would generally be isolated from population centers, which would diminish the potential of any physical or socioeconomic impacts to Native American, minority or low-income groups. Depending on the method of application of herbicides, the potential exists for impacts from accidental drift from the treatment area into inhabited non-target areas. The risks associated with these alternatives are included in the *PEIS* (BLM, 2007).

Environmental Consequences, (No Herbicide Use): Treatment areas would generally be isolated from population centers, which would diminish the potential of any physical or socioeconomic impacts to Native American, minority or low-income groups. Herbicide drift risk is removed through this alternative; however weed control effectiveness is also compromised.

Mitigative Measures: None

Name of specialist and date: Mike Andrews, 02/17/09

FLOOD PLAINS

Affected Environment: Large floodplain areas are present in the LSFO within or along many ephemeral, intermittent and perennial stream drainages where stream gradients are typically less than 2 percent. Many alluvial fan valleys would exceed this gradient and still provide the functions of floodplain areas. Most planning and environmental considerations are given to active floodplain areas along all stream types with emphasis placed on retaining active floodplain areas and maintaining ecological floodplain function. Longer duration floodplain areas, such as 100-year floodplains are managed to reduce occupation on the floodplain area by structures and to prevent property loss and damage.

Annual plants, including downy brome (cheatgrass), are present on some active floodplain areas and alluvial fan valleys in the western portion of the planning area. Temporary cover by annual plants is less effective than indigenous plant communities in preventing water and wind erosion. Established perennial species have denser and more abundant fibrous root systems in the top four inches of soil.

Noxious weeds frequently present in floodplain areas include Russian olive, tamarisk, hoary cress, perennial pepperweed, leafy spurge, houndstongue, Canada thistle and other biennial thistles. Noxious weed species have a high potential for becoming established on areas adjacent to the active floodplain.

Environmental Consequences, Proposed Action: Under this alternative, mechanical treatments, such as disking, in floodplain areas may be used to remove undesirable vegetation. Where large infestations occur, ground disturbance from mechanical treatments could cause soil loss along the active floodplain, leading to the establishment of new flow patterns or overflow channels in the short term. Active floodplain areas could therefore become unstable. However, this may be a desirable outcome in many areas where invasive species, such as tamarisk and Russian olive, have unnaturally stabilized historically dynamic and shifting stream channels. In areas where stable stream banks are desired, techniques that cause the least possible ground disturbance will be used to prevent excessive erosion.

The Proposed Action includes the use of the active ingredient imazapic which can be used for chemical treatment of downy brome. This active ingredient would be useful to include in restoration projects to promote desirable vegetation establishment. The chemical application could be integrated with manual, or in some limited cases, mechanical restoration treatments.

By controlling invasive plants using IPM, the chance for successful restoration of floodplains is greater, thereby benefiting native plant species and the habitat floodplains provide. Overall beneficial effects to floodplains would be greater under this alternative because the tools available have the potential to address the scale of management necessary to affect positive change, particularly in floodplain health and function. The minor short-term adverse impacts would be outweighed by the long-term benefits of floodplain restoration.

Environmental Consequences, Alternative One (No Action): Under this alternative the impacts to floodplain resources are the same as the Proposed Action Alternative, but less likely to occur. Large area mechanical projects to reestablish perennial grasses and forbs in areas infested with downy brome would likely not be proposed without the added capability of using imazapic to control downy brome.

Environmental Consequences, Alternative 2 (No Herbicide): Under this alternative only mechanical, manual, and biological control practices would be available and eradication (as a management goal) of priority species or small, localized infestations is not likely. However, risks of adverse impacts by herbicide use to floodplains by inadvertent contact and accidental spills are eliminated. Infestations of noxious weeds would likely expand in floodplain areas without the use of chemical applications. It is anticipated that some of the invasive species present on BLM lands can be managed using manual, mechanical, biological, and cultural techniques; however, for those that cannot, it is anticipated that they will continue to spread. Without herbicide use, manual/mechanical treatments alone on weeds commonly found in floodplains, such as tamarisk and Russian olive, would only be effective in eliminating the current above ground biomass and seed source from mature plants. These plants would resprout and continue to grow until manually removed again or until biological controls can become established. Biological control may be more effective in the long term as more insects and pathogens are found and approved for use. However, this would require infestations to become large enough to warrant and/or sustain biocontrol (insect) populations.

In the short term it would be anticipated that noxious weeds currently in floodplains would continue to grow into larger and more continuous infestations. Using manual, mechanical, biological, and prevention techniques for invasive plant management could indirectly affect the desired condition of maintaining, preserving, and protecting floodplain value and function. Use of only these techniques is expected to have an overall adverse effect on floodplain communities and for potential of restoration success. Mitigation measures would eliminate adverse impacts of the techniques themselves, but not the impacts of the accelerated rate of spread of existing and new invasive plant populations.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 4/9/09; Emily Spencer, 2/24/10

INVASIVE, NONNATIVE SPECIES

Affected Environment: Although a systematic weed inventory has not occurred for the field office, the most common invasive plant in the LSFO is downy brome (cheatgrass), on Colorado's C List of Noxious Weeds. This plant is found throughout the affected area in all plant community types. It is most pronounced and damaging in the western portion of the field office area where its aggressive nature, annual growth form and early spring growth characteristics have allowed it to spread along disturbed corridors and into rangelands. In areas where this plant has formed dense extensive infestations it threatens, or has transformed, the fire regime of the

plant community. Downy brome can also invade after wildfire and persist in the burned area. Cultural practices, such as seeding and grazing management assist in controlling this noxious weed.

Halogeton is another annual noxious weed present in the project area and is also on Colorado's C List of Noxious Weeds. Halogeton is also poisonous to sheep. It is common on alkaline soils within the saltbush plant community. Recent studies have been conducted on the use of different chemicals, tank mixes and rates to obtain effective control on halogeton and reduce the impact on non-target vegetation. Results show that a low rate of chlorsulfuron methyl (0.25 oz formulated) has effective control of halogeton with little to no effect on Gardner's saltbush.

Hoary cress (whitetop) and Canada thistle are the most extensively established B List noxious weeds in the planning area. These plants can be found in arid environments, where water can accumulate in road ditches and on floodplain areas, as well as mesic plant communities. A large partnership effort has been undertaken to control hoary cress in the Axial Basin and Danforth Hills areas southwest of Craig. Through a Coordinated Resource Management (CRM) effort a grazing management program has been implemented on a large portion of this area to manage desirable vegetation and encourage competition with invasive species.

Russian knapweed, leafy spurge, houndstongue, Dalmatian toadflax, yellow toadflax, spotted knapweed, and biennial thistles (Scotch, plumeless, bull and musk thistles) occur in relatively high numbers in locations throughout the planning area. These plants are listed on Colorado's B List of Noxious Weeds.

Tamarisk, Russian olive, leafy spurge, and perennial pepperweed (tall whitetop) are found in floodplains and stream corridors although these plants can be established near upland water developments. These plants are listed on Colorado's B List of Noxious Weeds. Extensive inventory work was undertaken by Utah State University and Dinosaur National Monument in 2005 to map the occurrence of tamarisk and Russian olive on the Little Snake and Yampa Rivers and major tributaries. BLM partnered with the inventory project and has received the tabular and electronic inventory data for use in planning targeted treatments.

Many other B and C List noxious weeds occur throughout the planning area and are a problem in certain locations. Integrated Pest Management techniques emphasizing early detection and treatment strategies are very important for the management of newly occurring or less frequently occurring weed species.

There are no known widespread problems with weeds on Colorado's A List of Noxious weeds, although Mediterranean sage has been reported in the northern portion of the planning area near the border of Moffat and Routt Counties. Additionally, one location of yellow starthistle has been identified and treated on private land in the western portion of the planning area.

Environmental Consequences, Proposed Action: This alternative provides the best available combination of vegetation treatments for the control of noxious weeds and other invasive and

undesirable species. It provides a detailed Integrated Pest Management (IPM) plan that would be used to guide the LSFO staff in their efforts to control noxious weeds and undesirable vegetation. This alternative includes additional active ingredients available for use in chemical treatments. The active ingredient imazapic has proven effective in the control of downy brome and would be useful to include in restoration projects to promote desirable vegetation establishment. Approval of diquat and fluridone would provide new capabilities for controlling invasive aquatic plants if future problems arise. The *PEIS* (BLM, 2007) provides procedures to review, analyze and approve new active ingredients that would become available commercially.

The Standard Operating Procedures (SOPs) included in the proposed decisions would minimize or reduce adverse effects on the environment for all vegetation treatments.

Environmental Consequences, Alternative 1 (No Action): The No Action Alternative would not implement additional processes made available for Integrated Pest Management through the Proposed Action. The new active ingredients made available for use on BLM lands and those that would become available in the future would not be incorporated in the LSFO chemical treatment applications. The active ingredient imazapic would not be available for use in the LSFO planning area to control downy brome. This limits the planning tools available to manage wildlife habitat, livestock grazing, wildfire prevention, and recreation use. Additionally, pre and post fire management options would be limited.

Environmental Consequences, Alternative 2 (No Herbicide): Under this alternative the BLM would not have effective vegetation treatment for noxious weeds. Chemical applications are necessary to control noxious weed populations when they are relatively small. The current noxious weed infestations would continue to expand and provide a seed source for new infestations. Although the other treatment methods could still be implemented and would prove effective in some areas, they would be very labor intensive, costly and less effective without complimentary herbicide use. As new biological control agents are developed and introduced this alternative could become more practical for some noxious weeds in the future.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 4/9/09

MIGRATORY BIRDS

Affected Environment: The LSFO includes over 1.3 million acres of BLM managed lands and spans a variety of elevations and vegetation communities. The diversity of vegetation communities provides habitat for a variety of migratory songbirds. The LSFO is located within two Bird Conservation Regions – Northern Rockies and Southern Rockies/ Colorado Plateau. Several species on the USFWS's Birds of Conservation Concern (BCC) list for these regions occupy habitats within the LSFO.

Salt desert communities composed of fourwing saltbush, shadscale, Wyoming big sagebrush, and

greasewood are found at lower elevations. These areas may contain colonies of white-tailed prairie dogs, which provide habitat for two BCC listed species, burrowing owls and ferruginous hawks. Extensive shrublands dominate much of the LSFO. Most shrubs in these areas are either big sagebrush or deciduous mountain shrubs such as bitterbrush and serviceberry. Birds listed on the BCC list that nest in shrublands include: Brewer's sparrow, sage thrasher, sage sparrow and loggerhead shrike.

Pinyon-juniper woodlands are widely distributed across resource area. Two pinyon-juniper obligate birds on the BCC list are pinyon jay and juniper titmouse. Limited higher elevation aspen stands and coniferous forests are also present within the resource area. These forests provide habitat for two BCC listed species, flammulated owl and Cassin's finch.

Rock outcrops and cliffs provide nesting habitat for a variety of raptor species, including golden eagles, prairie falcons and peregrine falcons. Cottonwood galleries along the Yampa and Little Snake Rivers and their major tributaries provide nesting areas for bald eagles.

Environmental Consequences, Proposed Action:

Manual Removal: Migratory birds may be impacted by manual removal activities if nesting substrates (i.e. cutting of Russian olive trees) are treated during the nesting season. This could lead to nest destruction or nest abandonment from noise and an increase in human activity. However, most disturbance around nests would be of short duration and brief periods of disturbance are not expected to adversely influence individual nesting efforts.

Biological Control: This treatment method would have minimal impacts to migratory bird species within the LSFO. Biological control of tamarisk may impact species that have become accustomed to foraging or nesting in this non-native shrub species. Introducing biological controls to kill vegetation could have unintentional effects on the wildlife community by establishing a new food source. Depending on what species uses the new food source, the effect could be positive or negative. If generalists respond positively to the new food source it may increase competition to other species causing an overall decline in specialist populations. Prescribed grazing may also be used a biological control method. However, a site-specific EA will be conducted for prescribed grazing treatments.

Chemical Control: In terms of disturbance to nest sites due to human activity, the impacts of chemical control methods are similar to those of manual control methods. Chemical weed control can otherwise influence migratory birds due to exposure to hazardous chemicals, ingestion of exposed food items or alteration of habitat conditions.

It is assumed that most birds would move out of the area during herbicide application and the only individuals that may receive direct exposure to herbicides during broadcast applications would be young that have not yet fledged. Indirect impacts to insectivores due to loss of prey species are not anticipated. Most herbicides pose little to no risk to insects. Most of the herbicides approved for use by the BLM pose either no risk or low risk to migratory birds due to

consumption of contaminated food items. Picloram had a low risk to birds from ingesting contaminated vegetation at the maximum application rates. Dicamba, imazapyr, diquat, diuron, clopyralid, glyphosate, hexazinone, triclopyr and 2,4D were all found to have some risk to birds ingesting contaminated insects or vegetation at either the typical or maximum application rate. 2,4D had the greatest risk from ingesting insects or vegetation.

Several BCC listed birds in the LSFO consume insects as a major portion of their diet. Since 2,4D at any application rate poses a risk to avian insectivores across a wide variety of habitat types, it is recommended that its use be restricted within the LSFO to the extent practicable. Aerial spraying of 2,4D would have the most impacts to avian species and should only be used when absolutely necessary and should be used at the minimum rate.

Environmental Consequences, Alternative 1 – No Action: Under this alternative, the LSFO would not be permitted to use the herbicides difluenzopyr, diquat, fluridone, and imazapic. In general, denial of the use of these herbicides would result in a decreased opportunity for migratory birds to be exposed to chemicals or for harmful effects on desirable plant species on which they depend.

Diquat and floridone are seldom used to treat weed within the LSFO and difluenzopyr is primarily used to treat bare ground on oil and gas pads. The ability to use these chemicals would make little difference to weed treatments within the resource area.

The ability to use imazapic would, however, substantially change the implementation of the IWMP since it targets cheatgrass. Cheatgrass is found throughout the resource area with very large infestations occurring in some areas. These habitats support a variety of migratory birds including several species that are on the BCC list. Cheatgrass degrades these areas by suppressing native herbaceous vegetation and also by altering the fire return interval. Imazapic has a low toxicity to birds and effective use of it as part of a program to improve habitat conditions for migratory birds would be beneficial.

Environmental Consequences, Alternative 2 – No Herbicide Use: This alternative would severely limit the ability to treat noxious and invasive plant species. Herbicides are an important tool that allow the BLM to introduce disturbances into late succession habitats in a controlled manner. Overall, it is expected that any benefit migratory birds may experience from not being exposed to chemicals would be negated by the expansion of weed species and degraded habitat conditions.

Mitigative Measures: Limit the use of 2,4D as much as practical within the field office. Other mitigative measures are found in Appendix 7.

Name of specialist and date: Desa Ausmus, 8/25/10

NATIVE AMERICAN RELIGIOUS CONCERNS

A letter was sent to the Uinta and Ouray Tribal Council, Southern Ute Tribal Council, Ute Mountain Ute Tribal Council on May 5, 2008. The letter listed the FY08 and FY09 projects that the BLM would notify them on and projects that would not require notification. A follow up phone call was performed on June 16, 2008. No comments were received (Letter on file at the LSFO). This project requires no additional notification.

Name of specialist and date: Robyn Watkins Morris, 2/12/09

PRIME & UNIQUE FARMLANDS

Affected Environment: There are 10 soil mapping units on BLM land in Moffat County that have Prime Farmland characteristics and would be considered as such if these soils were irrigated. There are 9 soil mapping units on BLM land within Moffat County and 1 soil mapping unit within Routt County that are designated Farmland of Statewide Importance.

Environmental Consequences, Proposed Action: Implementation of the Proposed Action would enhance the agricultural value of these soils. Vegetation treatments could be implemented to reduce undesirable vegetation and control noxious weeds. Areas infested with downy brome would have the active ingredient imazapic available to help control this plant and enhance revegetation efforts that would return these soils to a more productive agricultural use.

Environmental Consequences, Alternative 1 (No Action): Beneficial impacts to these farmland soils would be the same as the Proposed Action, except that the chemicals approved for use on BLM lands would be limited. The active ingredient imazapic would not be available for controlling downy brome on soils having the characteristics of Prime Farmland or on soils that have been designated as Farmland of Statewide Importance. Any chemicals approved for use in the future would not be available under this alternative further limiting potential advancements to beneficial impacts under this alternative.

Environmental Consequences, Alternative 2 (No Herbicide): No chemical applications would be conducted if Alternative 2 is selected. Mechanical, manual and biological control practices would be available. Infestations of noxious weeds would likely expand on farmland soils without the use of chemical applications. Mechanical treatments would probably not be undertaken until the size of infestation warranted control. It would be impractical to manually treat small infestations. Biological control could be more effective in the long term as more insects and pathogens are found and approved for use.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 3/24/09

T&E AND SENSITIVE SPECIES ANIMALS

Affected Environment: The Little Snake resource area provides habitat for several BLM sensitive species and ESA listed and candidate species. Table 3 lists Federally listed and Candidate species. BLM sensitive species that are known to occur on BLM lands within the LSFO include: white-tailed prairie dog, spotted bat, northern goshawk, burrowing owl, ferruginous hawk, mountain plover, peregrine falcon, bald eagle, long-billed curlew, American white pelican, Brewer's sparrow, Columbian sharp-tailed grouse, bluehead sucker, flannelmouth sucker, mountain sucker, roundtail chub, Colorado River cutthroat trout, midget faded rattlesnake, northern leopard frog and Great Basin spadefoot.

Table 3 – Threatened, Endangered and Candidate Species for the LSFO

Common Name	Status	Habitat
Bonytail	Endangered	Yampa and Green Rivers
Humpback chub	Endangered	Yampa and Green Rivers
Razorback sucker	Endangered	Yampa and Green Rivers
Colorado pikeminnow	Endangered	Yampa and Green Rivers
Greenback cutthroat trout	Threatened	Higher elevation creeks and streams
Mexican spotted owl	Threatened	Dense old-growth conifers and deciduous (especially in steep walled canyons).
Canada lynx	Threatened	Coniferous forest
Black-footed ferret	Experimental/ Nonessential	Prairie dog colonies
Yellow-billed cuckoo	Candidate/BLM Sensitive	Mature cottonwood riparian woodlands.
Greater sage-grouse	Candidate/BLM Sensitive	Sagebrush stands

Environmental Consequences, Proposed Action: Impacts to BLM sensitive species would be similar to impacts described in the Terrestrial and Aquatic Wildlife Sections of this EA. The impacts of herbicide use on BLM sensitive species would primarily be site- and application-specific, and as such, site assessments would have to be performed at the field level, during the PUP process.

Section 7 Consultation was conducted with the USFWS for all listed and candidate species. Based on proposed treatment techniques (including BMPs, SOPs, and the conservation measures listed above) and the intent of the IWMP to minimize infestations of invasive weeds as much as practical, the BLM - LSFO concluded that the proposed LSFO IWMP will not jeopardize the continued existence of any ferret population within the LSFO and *may affect, but is not likely to adversely affect* Mexican spotted owl or Canada lynx. The LSFO IWMP *may affect, but is not likely to adversely affect* Colorado pikeminnow, bonytail, humpback chup, razorback sucker or

designated critical habitat for these four fish species. The USFWS concurred with this finding (Biological Assessment and concurrence letter are on file in the LSFO).

Bonytail, Humpback chub, Razorback sucker and Colorado pikeminnow

Direct Effects

Direct effects to the Colorado pikeminnow, bonytail, humpback chub, and razorback sucker from exposure to herbicides under the proposed IWM Plan were determined primarily from literature review and the previous ERAs cited in the PEIS and PBA. Fish and other aquatic organisms could be exposed to herbicides in three absorption through the skin from, the surrounding water, uptake through the gills during respiration on/or uptake through the digestive system during consumption of prey from contaminated water

The major factor influencing the potential for exposure to fish is aerial drift from treated areas into untreated areas and non-target resources (waterbodies). Other means by which herbicides could reach aquatic habitats is through runoff from treated areas, inadvertent direct spraying, and accidental spills. Application of the SOPs and conservation measures would substantially reduce the potential for exposure of aquatic organisms to herbicides.

Species-specific toxicological data do not exist for most ecological receptors, including fish species of special concern in the LSFO area. Thus, the ERAs cited in the PEIS and PBA used surrogate species for evaluating potential adverse impacts. Surrogate species used were the bluegill (*Lepomis macrochirus*) and/or sunfish (*Lepomis* spp.) to represent the Colorado big river fishes.

For direct spray or accidental spill scenarios, most of the proposed herbicides had no effects or posed a low risk to fish in stream habitats, however negative effects would be associated with bromacil, diquat, diuron, 2,4-D, glyphosate, picloram, imazapyr, and triclopyr. For direct spray on a stream, there were moderate risks from bromacil or diquat and a high risk from diuron (Table 7). For accidental spills, there was a moderate risk from imazapyr at the typical application rate and from 2,4-D or triclopyr TEA at the maximum application rates. There was a high risk from accidental spill scenarios involving glyphosate or picloram at any application rate and from imazapyr and triclopyr (TEA and BEE) at the maximum application rate.

For most of the proposed herbicides, off-site drift and surface run-off did not result in negative effects to either fish or aquatic invertebrates. The PEIS recommended minimum buffer distances to minimize risk to fish and aquatic organisms from off-site drift of diuron (BLM 2007a, p4-98), even though the risk assessment specifically for off-site drift and surface run-off of diuron anticipates no risk. This may be in response to the fact that diuron is highly toxic to aquatic invertebrates, aquatic plants, and fish (and has the potential to bioaccumulate).

Indirect Effects

Any use of prescribed grazing as a weed treatment method within the LSFO will be analyzed under a site-specific Environmental Assessment. If the proposed prescribed grazing treatment were to occur within DCH for any fish species, then additional Section 7 Consultation would be initiated with the USFWS.

LSFO released tamarisk leaf beetle in Temple Gulch Creek, a drainage of the Yampa River in 2008. These beetles were released to treat tamarisk on BLM lands, but beetles are expected to naturally expand from the release site along the riparian corridor. The LSFO is planning to release more beetles along Vermillion Creek in 2010. Both releases are out of DCH for the Colorado River fish, however, there is some potential for tamarisk treatments along the Yampa River. Most of the large scale tamarisk infestations along the Yampa are on private land, but there are some small infestations on BLM lands. Potential negative impacts associated with treatment would be an increase in other weed species which would likely require the use of more herbicide in close proximity to the river. Potential long-term benefits associated with large-scale tamarisk removal would be the return of native vegetation and increased water availability. It is possible that tamarisk removal would influence hydrologic processes and result in increased flooding of lowland habitats, which are important components of critical habitat for Colorado River fish.

Introduction of biocontrol agents for other weed species are expected to have no effect on listed fish species since large infestations are not present in or near their habitat.

Manual or mechanical removal of weeds would not typically result in substantial disturbance to fish or their habitat. Manual removal of weeds typically occurs with small infestations. A notable exception would be cut stump treatments that target Russian olive and tamarisk within the 100-year flood plain of the Yampa or Little Snake Rivers. Efforts to control exotic vegetation along the Yampa River would strongly complement recovery goals for Colorado River fish by promoting the redevelopment of native riparian vegetation which contributes to maintaining proper functioning condition of the river's channel.

The principal indirect impact on aquatic organisms from weed treatments in adjacent riparian or upland habitats is increased sediment transport from the temporary reduction in vegetation cover (i.e., after the weeds die but before desirable species are established by seeding or natural recovery). For the endangered Colorado pikeminnow, bonytail, humpback chub, and razorback sucker, increased sediment loads due to short-term decreases in plant cover of adjacent riparian and upland habitats would not represent a significant impact. All of these species are well adapted to the naturally high sediments loads in the Colorado River and its major tributaries. In general, periodic to frequent influxes of sediment are important in the creation and maintenance of important microhabitats for these species. Movement and redistribution of sediments helps to create and maintain backwater habitats important to many life stages of these fish. Periodic inundation of floodplain areas with water/sediment provides optimal seedbed areas for native cottonwood regeneration to occur. Any increased sediment loading resulting from proposed

treatments would be site specific and short-term in duration (until such time as native or other desirable vegetation reestablishes at the site) and should have no negative impact to any of these

Canada lynx and black-footed ferret

Direct effects

There are no known toxicity studies specific to ferrets or lynx and it is assumed that both species would be affected in the same manner as other mammals. Direct spray of either species would be unlikely during herbicide applications, since these animals would be able to flee the site or run into cover. There was a low risk to mammals due to direct spray (100% absorption) of glyphosate, hexazinone, or triclopyr at the typical application rate, or imazapyr or metsulfuron at the maximum application rate, or clopyralid and picloram at any application rate. The highest risk to mammals was a moderate risk associated with direct spray of glyphosate, hexazinone, or triclopyr at the maximum application rate or 2,4-D at any application rate. Ferrets are nocturnal animals that spend the daylight hours underground in prairie dog burrows thus it is highly unlikely that ferrets would ever be directly exposed to herbicide application (e.g. aerial applications). It is practically inconceivable that that lynx would be directly exposed to herbicides applied as spot spray treatments. For ground broadcast applications, it is assumed that lynx would temporarily move out of the area during the application process and thus it is unlikely that they would be directly exposed to chemicals. It is more likely that they would be directly exposed to herbicides during an aerial broadcast application. To minimize the risk of direct exposure to chemicals, the LSFO will not use aerial broadcast as an application method within the LAUs. Thus, it is unlikely that lynx would ever be directly exposed to any of the herbicides.

Indirect effects

Manual removal of weeds would not result in substantial disturbance to ferrets, lynx, or their habitat. Manual removal of weeds typically occurs with small infestations. Removal of weed infestations before they occur in large tracts of habitat would be beneficial.

Any use of prescribed grazing as a weed treatment method within the LSFO will be analyzed under a site-specific Environmental Assessment. If the proposed prescribed grazing treatment were to occur within habitat for black-footed ferrets or Canada lynx, then additional Section 7 Consultation would be initiated with the USFWS.

Introduction of biocontrol agents for leafy spurge, dalmation toadflax or tamarisk are expected to have no effect on ferrets or lynx since large infestations of these weeds are not present in or near their habitat and since the release sites are not in, or in close proximity to, suitable habitat.

It is possible that both ferrets and lynx would be exposed to herbicide through ingestion of contaminated food items (i.e. prairie dogs and snowshoe hares, respectively). Ferrets and lynx may also be indirectly affected by herbicide treatments if herbicides were to negatively impact prairie dogs and hares to the extent that it reduced the available prey base. Prairie dogs may be

directly exposed if the herbicide were applied aerially since they occur in many of the places in the LSFO where there are expansive stands of cheatgrass and thus occur in locations were larger scale treatments may be employed. Snowshoe hares may be exposed to herbicides directly during broadcast applications (ground). Both prairie dogs, snowshoe hares, and other possible prey species may also be exposed due to ingestion of contaminated vegetation. Most of the proposed herbicides pose no risk to small mammalian herbivores due to consumption of contaminated vegetation. There is a low risk associated with diquat or diuron at the typical application rate or bromacil, dicamba, or tebuthiuron applied at the maximum application rate. The highest risk was a moderate risk associated with consumption of vegetation contaminated by diquat and diuron applied at the maximum application rates. Most of the proposed herbicides pose no risk to mammalian carnivores that may consume contaminated prey. There is a low risk associated with consumption of contaminated prey from applications of dicamba, diuron, and 2,4-D at any application rate and from application of bromacil and triclopyr at the maximum application rate.

Mexican spotted owl, yellow-billed cuckoo and greater sage-grouse

Direct Effects

Herbicide treatments would involve workers and the use of vehicles (trucks/ATVs) or aircraft, which could potentially disturb any Mexican spotted owls, western yellow-billed cuckoos or greater sage-grouse within the treatment areas. Disturbance would be temporary, and effects would be greatest during the breeding season, when reproductive success could be reduced if a nest is abandoned.

While it is very unlikely that any Mexican spotted owls or yellow-billed cuckoos would be exposed to herbicides during treatments, it is conceivable that inadvertent direct exposure to herbicide spray could occur as a result of drift from a treated area or flight of an individual through spray mist. This potential is remote for the cuckoo, which is very furtive and avoids habitats where spraying could occur. Any spraying within a wooded riparian community would be done at the ground level and not directed onto the tree or tall shrub canopy. The owl also is associated with wooded habitats, with no spraying of the canopy, and is nocturnal (all spraying would occur during the day). Greater sage-grouse would have the most potential for exposure to herbicide spray since this species is tied to sagebrush habitats—the type most likely to be sprayed by ground or aerial methods. Despite these potential exposures to spray, the majority of herbicides have no to low toxicity to birds at the typical application rate.

Manual and biological controls would not have a risk of direct impact to the Mexican spotted owl, western yellow-billed cuckoo or greater sage-grouse.

Indirect Effects

Herbicide treatments are not expected to have an indirect effect on the Mexican spotted owl or western yellow-billed cuckoo, because the tree and tall shrub canopies of occupied or suitable habitats would not be sprayed with herbicides. Russian-olive and tamarisk could be removed

manually from some riparian corridors, but these invasive non-natives do not provide habitat for these two bird species and the long term impacts of their removal would be beneficial. Some alteration of the composition of lower canopy layers (low shrubs and the grass/forb layer) could occur, but key habitat components would not be affected.

Manual, biological, or herbicide treatments of the herbaceous layer on forest floors or in pastureland, grassland or sagebrush/saltbush habitats could temporarily affect prey abundance for the Mexican spotted owl. Potential reductions in prey abundance due to toxic effects of herbicides are very unlikely, given the low exposure risk to most small mammal prey—and particularly to the preferred prey of owls, which are nocturnal. In the unlikely event that changes in prey abundance were to occur, this impact would be temporary and offset over the long term by improvements in the treated communities. Because the western yellow-billed cuckoo feeds almost entirely in the canopies of trees and tall shrubs, no effects on their insect prey would be expected to result from weed treatments in the lower habitat strata.

There would be some risk to greater sage-grouse from ingesting insects or vegetation contaminated by herbicides, since sage-grouse forage on insects, forbs and sagebrush close to the ground. Picloram had a low risk to birds from ingesting contaminated vegetation at the maximum application rates. Dicamba, imazapyr, diquat, diuron, clopyralid, glyphosate, hexazinone, triclopyr and 2,4D were all found to have some risk to birds ingesting contaminated insects or vegetation at either the typical or maximum application rate. 2,4D had the greatest risk from ingesting insects or vegetation.

Over the long term, benefits of weed eradication and control—including manual treatments of Russian-olive and tamarisk—would be expected to offset the temporary impacts of additional disturbance. Furthermore, the proposed conservation measures would specifically include measures to avoid or minimize potential direct or indirect impacts on these three species.

Environmental Consequences, Alternative 1 – No Action: Continuing with the present management would allow the BLM to treat weeds in problem areas. This alternative would limit the number of tools available and may limit the effectiveness of treatments.

Environmental Consequences, Alternative 2 – No Herbicide Use: This alternative would severely limit the BLM's ability to treat noxious and invasive plant species. This alternative would make it very difficult for the BLM to control weed infestations. It can be expected that habitats for many threatened, endangered and special status species would deteriorate, having a negative impact on these species.

Mitigative Measures: Conservation measures were incorporated into the Proposed Action. Mitigative measures are found in Appendix 7.

Name of specialist and date: Desa Ausmus 8/31/10

T&E AND SENSITIVE PLANTS

Affected Environment: The proposed project area contains the following populations of plants listed as sensitive by BLM: Duchesne milkvetch (*Astragalus duchesnensis*), debris milkvetch (*A. detritalis*), Woodside buckwheat (*Eriogonum tumulosum*), Duchesne buckwheat (*E. viridulum*), ligulate feverfew (*Bolophyta ligulata*), tufted cryptanth (*Oreocarya caespitosa*), narrow leaf evening primrose (*Oenothera acutissima*), Uinta Basin spring parsley (*Cymopterus duchesnensis*), strigose Easter-daisy (*Townsendia strigosa*), and Gibben's beardtongue (*Penstemon gibbensii*). While these species are not protected under the Endangered Species Act, their rarity and potential for listing has resulted in recognition by BLM that they need particular attention so management activities do not adversely impact existing populations. BLM would take all necessary actions to mitigate any adverse impacts to existing populations of these species.

Within the boundaries of the project area, there is one federally listed threatened species, Ute ladies'-tresses (*Spiranthes diluvialis*). Habitat exists for this plant on BLM lands within the LSFO however, this species has not been identified on BLM lands within the planning area. Section 7 consultation was completed for the IPMP. A determination of *may affect, not likely to adversely affect* was found for Ute ladies'-tresses. USFWS concurred with this determination (Biological Assessment and concurrence letter are on file in the LSFO).

Environmental Consequences, Proposed Action: As required through the PUP process, this alternative would require a site-specific review of each treatment proposal for the presence of special status plant populations. Any populations that would be impacted by chemical, biological, or mechanical weed treatments would be either completely avoided or, in extraordinary circumstances, have seeds collected in accordance with BLM policy prior to treatment. The habitats for most special status plant species within the project area are not located in habitats typically invaded by weeds. The need to avoid existing populations is uncommon.

Environmental Consequences, Alternative 1 (No Action): The restrictions in the use of new chemicals would not result in impacts to special status plants any different than for the Proposed Action. The same mitigation measures would apply.

Environmental Consequences, Alternative 2 (No Herbicide Use): This alternative would completely eliminate any potential for take of special status plants as a result of accidental chemical application on protected populations either directly or through drift. All mitigation through avoidance measures would continue to apply to non-herbicidal methods.

Mitigative Measures: None

Name of specialist and date: Hunter Seim, 2/11/09

WASTES, HAZARDOUS OR SOLID

Affected Environment: All land areas in the LSFO as described in vegetation, wildlife and soils sections within this EA.

Environmental Consequences, all alternatives: Weed control projects, and the methods discussed in this document, utilize hazardous materials and associated equipment for implementation. This element and its affect on specific resources is covered in the individual sections within this EA as well as the *PEIS* (BLM, 2007).

Mitigative Measures: None

Name of specialist and date: Christina Rhyne, 4/16/09

WATER QUALITY - GROUND

Affected Environment: The Proposed Action affects the surface of all BLM managed lands in the LSFO. Groundwater is found in most of the sedimentary rocks of the Colorado Plateau, and is the major source of water for domestic and municipal use. Major aquifer systems are not present; groundwater is localized and can be abundant in some areas and absent in others. Farming is typically limited to stream valleys, where irrigation water comes mostly from surface water. Groundwater baseflow is the major source of water for perennial flows in the late summer and early fall. Groundwater quality in this region appears to be influenced mainly by the nature of the bedrock.

Environmental Consequences, Proposed Action and Alternative 1 (No Action): Herbicide, manual and mechanical treatments have the potential to affect water resources on or near public lands by altering water flows, surface water and groundwater quantity and quality, and rates of groundwater recharge. Groundwater, especially potable groundwater, provides drinking water for rural populations without access to public water supplies and provides water used for agriculture. Studies have shown some groundwater supplies to be contaminated with herbicides and other contaminants (total dissolved solids, metals, etc). Generally, shallow groundwater aquifers are at greater risk for contamination than deeper sources.

The four primary means of off-site movement of herbicides are runoff, drift, misapplication/spills, and leaching. Surface water could be affected by any of these means, while groundwater potentially would be affected only by leaching. Site conditions and application technique are other factors that can influence the effects of an herbicide on water quality.

Herbicides registered for use in terrestrial habitats may affect surface water and groundwater as a result of unintentional spills or movement of herbicides from the upland sites into aquatic systems. Vegetation, ground cover, or soil type between a treatment area and a water body can influence whether herbicides would reach water.

Additional effects to water quality that could occur from herbicide treatments include increased nutrient loads to surface water and groundwater. The mitigative measures included in Attachments #6 and #7 are in place to prevent negative effects to ground water quality.

Environmental Consequences, Alternative 2 (No Herbicide Use): It is not anticipated that this alternative would directly impact subsurface groundwater bearing aquifers.

Mitigative Measures: None

Name of specialist and date: Marilyn D. Wegweiser, 02/09/09

WATER QUALITY - SURFACE

Affected Environment: The water quality of the Little Snake River, Yampa River and perennial streams in the planning area is generally good. The Yampa River segment that begins immediately above the confluence with Lay Creek to its confluence with the Green River is on the 303(d) list for high iron levels. The Little Snake River segment that begins immediately above the confluence with Powder Wash to its confluence with the Yampa River is also listed for iron levels which exceed state standards. Fortification Creek from the confluence of the North Fork and the South Fork to its confluence with the Yampa River is on the 303(d) list for high selenium levels. The lower portions of Dry Creek, Sage Creek and Grassy Creek are also listed for high selenium levels but BLM lands are limited to very few small isolated parcels along these creeks. The Elk River (below Morin Ditch) is on the 303(d) list for having high E. coli levels. BLM lands that contribute tributary waters are very limited in the eastern portion of the planning area. The active ingredients 2,4-D, bromacil, dicamba, diquat, diuron, hexazinone, glyphosate and picloram have been detected in groundwater sources; imazapic could also be a groundwater contaminant.

Environmental Consequences, Proposed Action: Impacts to water quality resulting from herbicide treatment under the Proposed Action are covered in the *PEIS*, (BLM 2007) and accompanying environmental reports.

Water quality could be compromised in the short term by surface runoff from treated upland sites. Mechanical treatments would affect the largest surface area and extent of soil disturbance would depend on the type of equipment used and the integrated practice completed. Plowing undertaken to remove existing vegetation, and other implements that might be used to prepare a seedbed, would have the greatest effect to the soil surface and residual vegetation cover. Increased runoff from these disturbed areas would result and soil compaction could result from mechanized equipment. Sediment transport by runoff waters would be increased from the non-vegetated areas and compounded by the increased surface runoff that could occur. Suitable buffer areas left between the treated area and surface drainages would help contain or reduce this effect and minimize potential contamination to the surface or streambanks of the waterway.

Manual treatments would result in minor surface disturbance and treated areas would be much

smaller and more dispersed. Above ground vegetative cover may be reduced, residual plant and litter cover may still be present unless it is disposed of.

Biological treatments would not affect water quality with the exception of incidental use of ATVs or other vehicles that may be used for transportation.

Chemical treatments would potentially affect surface and shallow groundwater water quality from treatments where offsite movement of herbicides occurred primarily by runoff, drift, misapplication/spills or leaching. Each active ingredient has properties that affect water solubility and adsorption to soil and organic matter, which would characterize their threat to be carried off site by runoff water. These two factors, in combination with pesticide persistence (chemical half-life), help establish the leaching potential of an active ingredient. Soil texture, soil moisture levels and precipitation are physical factors that drive the leaching process. These factors are taken into consideration when herbicides are approved for use on BLM lands and when labeling the use precautions of herbicides. Adherence to all label specifications, mitigation measures, especially stream buffers and the appropriate SOPs, would reduce the potential for contaminating surface and shallow ground water sources.

Based on the HHRA (Human Health Risk Assessment), there would be a low risk to drinking water in areas treated with diquat, fluridone, glyphosate, or imazapyr if these aquatically labeled herbicides accidentally spill in streams, ponds, or lakes used by humans. Risk is moderate to high for drinking water contaminated with 2,4-D or triclopyr.

Leaks and spills of oil, fuel or other fluids required to operate mechanical equipment associated with vegetation treatments could impair water quality. Additional threats of chemical spills would occur with chemical treatments. The proposed use of diquat and fluridone would provide new capabilities for controlling invasive aquatic plants and could provide benefits to water quality through the control of invasive aquatic plants.

Overall beneficial effects to water quality would be greater under this alternative by using the full range of tools available to implement the treatments necessary to control weeds. Any minor short-term adverse impacts would be outweighed by the long-term benefits of improved water quality and associated aquatic resources.

Environmental Consequences, Alternative 1 (No Action): Selection of this alternative would result in the same potential impacts to water quality as the Proposed Action. Beneficial impacts to water quality that could result from using safer and improved active ingredients under the Proposed Action would not be possible. The ability to rehabilitate areas infested with downy brome would be reduced and water quality benefits that would be derived from establishing a stable perennial plant community may not occur.

Environmental Consequences, Alternative 2 (No Herbicide): Selection of Alternative 2 would eliminate the risks associated with chemical controls to contaminate surface and shallow ground water sources from herbicide. As the infestations become larger, more effort to control

weeds with mechanical or biological control treatments would be proposed. Consequently, water quality would likely be lower with increased sediments and other non-point source contaminants.

The benefits to water quality would be outweighed by the inability to control weeds without the use of herbicides. The end result would be an increase in invasive species, particularly in wetland and riparian habitats that cannot be effectively controlled by other means. Using manual, mechanical, cultural, and prevention techniques for invasive plant management could indirectly affect the desired condition to maintain and improve water quality and use of only these techniques are expected to have a minor adverse effect to processes that contribute to good water quality.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 4/10/09; Emily Spencer, 2/24/10

WETLANDS/RIPARIAN ZONES

Affected Environment: Lotic and lentic riparian systems occur along perennial and intermittent streams in the planning area. Isolated lentic systems occur on upland sites and within ephemeral stream channels from the discharge of water bearing rock strata at geologic contacts, perched aquifers or other seepage of shallow groundwater. Canada thistle, hoary cress, perennial pepperweed, leafy spurge, tamarisk, and Russian olive are the primary noxious weed species that invade these riparian areas in the LSFO. Other noxious weeds may persist on terraces and along the edge of these areas due to water, wildlife and livestock vectors that migrate and introduce weeds to adjacent terrestrial habitats. At the present time there are no known problems with invasive aquatic plants that would require the direct application of herbicides into streams, ponds, lakes or irrigation ditches on BLM land.

Environmental Consequences, Proposed Action: The effects of mechanical treatments would depend on the type and extent of soil disturbance and vegetation removal. Manual treatments with chainsaws integrated with chemical treatments would be used to control Russian olive and tamarisk in many riparian areas, although some foliar chemical treatments would be used on saplings, small plants and re-growth following treatments. This integrated control of tamarisk would likely involve the largest area of vegetation removal in riparian areas on BLM lands. Hand pulling isolated plants or small areas of infestation may occur at any time. This level of manual treatment would not substantially affect riparian functions. A large effort that could remove a substantial amount of plant cover and cause some limited soil disturbance by pulling roots and trampling stream banks should be carefully planned to reduce damage to desirable vegetation and ensure that remaining vegetation would be adequate to protect the soil resource and stream banks.

The BLM LSFO currently uses 2,4-D, glyphosate, imazapyr, and triclopyr in riparian and aquatic habitats. This alternative includes the proposal to use diquat and fluridone in these areas as well. Herbicides labeled for aquatic use would be available for spot applications in closer proximity to

water. On BLM lands, at the present time, there are no large continuous infestations of noxious weeds in riparian areas that, if chemically treated, would threaten to reduce riparian function.

Using a full complement of integrated techniques would help the BLM achieve objectives on an acceptable timeline. By controlling invasive plants using IPM, the chance for successful restoration of wetlands and riparian areas is greater, thereby benefiting native plant species and the habitat they provide. Overall beneficial effects to wetlands and riparian areas would be greater under this alternative because the tools available have the potential to affect positive change, particularly in riparian health and function. The minor short-term adverse impacts would be outweighed by the long-term benefits of riparian restoration.

Environmental Consequences, Alternative 1 (No Action): The direct impacts to riparian resources are similar for this alternative as discussed for the Proposed Action. However, the beneficial impact of using new active ingredients with more selectivity to control target species would not be possible under this alternative.

Environmental Consequences, Alternative 2 (No Herbicide): Risks of adverse impacts by herbicide use to wetlands and riparian areas by inadvertent contact and accidental spills are eliminated under this alternative. It is anticipated that some of the invasive species present on BLM lands can be managed using mechanical and cultural techniques; however, for those that cannot, it is anticipated that they would continue to spread. Without herbicide use, manual treatments alone on riparian weeds such as tamarisk and Russian olive would only be effective in eliminating the current above ground biomass and seed source from mature plants. These plants would resprout and continue to grow until manually removed again. In the short term it would be anticipated that noxious weeds currently in riparian areas would continue to grow into larger and more continuous infestations. Even with mechanical control on herbaceous riparian weeds, resprouting would occur. Biological control with livestock would become more feasible with large area infestations of some weeds, but their capability to completely control the targeted weeds would be seasonal and needed routinely. Biological control with insects and pathogens is evolving and may be more effective in the future.

Using manual, mechanical, cultural, biological, and prevention techniques for invasive plant management could indirectly affect the desired condition of maintaining, preserving, and protecting wetland and riparian values and function. Use of these techniques only are expected to have an overall adverse effect on wetland and floodplain communities and on the potential of restoration success.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 4/10/09; Emily Spencer, 2/24/10

WILD & SCENIC RIVERS (WSR)

Affected Environment: There are currently no designated WSRs in the LSFO. However, segments of the Yampa River, Vermillion Creek, and Beaver Creek are determined to be eligible for inclusion in the national WSR system in the Little Snake Draft RMP/EIS (2007).

Environmental Consequences, all alternatives: Application of herbicides while adhering to all mitigation measures, especially stream buffers and the appropriate SOPs, would not affect the free flowing nature or the outstandingly remarkable values of the eligible segments.

Mitigative Measures: None

Name of specialist and date: Gina Robison, 2/11/09

WSAs, WILDERNESS CHARACTERISTICS

Affected Environment: The BLM LSFO area includes seven Wilderness Study Areas (WSAs) that are managed to preserve wilderness values according to the interim management policy and these areas will continue to be managed in that manner until Congress designates them as wilderness or releases them for other uses. These WSAs are Cross Mountain, Diamond Breaks, West Cold Spring, Ant Hills, Chew Winter Camp, Peterson Draw and Vale of Tears. Several areas outside of WSAs also contain wilderness characteristics.

The presence of nonnative species degrades the quality, character, and integrity of WSAs and areas with wilderness characteristics. Weeds can become established through wildlife, pack stock, or wild horses and burros that migrate in and out of WSAs carrying seed on fur or feces, or through hikers and wildlife bringing in weed seeds on their clothing or equipment. Increases in noxious weeds can increase hazardous fuels that could result in a catastrophic wildfire, degrading unique qualities associated with WSAs.

Environmental Consequences, Proposed Action: Implementing chemical vegetation treatments in WSAs and lands with wilderness characteristics would have short-term negative effects and long-term positive effects. Treatments in WSAs would only be allowed in order to improve the natural condition of these areas. The long-term effects would be reduction of noxious weed infestations, reduced risk of catastrophic wildfires and improvement in wilderness characteristics. Preventive treatment would eliminate or reduce the need for more aggressive treatment in the future and the need for emergency fire suppression, which can be very damaging. In addition, the reduction of hazardous fuels and noxious weeds on lands adjacent to or near WSAs would provide long-term benefits by reducing the likelihood that noxious weeds would spread into WSAs.

Environmental Consequences, Alternative 1 (No Action): This alternative is similar to the Proposed Action with the exception of more limited options in herbicide selection. Without the newly approved herbicides included in the Proposed Action treatment effectiveness would be

compromised.

Environmental Consequences, Alternative 2 (No Herbicide Use): This alternative provides the least success for controlling weeds in a WSA. Short term effects of some manual treatments may have lower non-target impacts but over the long term it would be very difficult to control wide spread weed invasions or prevent small infestations from spreading without the option of incorporating herbicides into an IPM plan.

Mitigative Measures: None

Name of specialist and date: Gina Robison, 02/11/09

NON-CRITICAL ELEMENTS

SOCIOECONOMICS

Affected Environment: The vast majority of public lands in the project area are located away from population centers in Moffat and Routt Counties, with scattered clusters of dwellings or isolated dwellings occurring on adjacent or nearby private lands. Ranching, farming, coal mining and oil and gas development are the primary economic activities in outlying areas. About 13% of households in Moffat County are considered low-income. About 9% of the households in Routt County are considered low-income (U.S. Census data, 2000-2006).

Environmental Consequences, Proposed Action and Alternative 1 (No Action): Expenditures for treatment projects would provide positive short-term local economic impacts. There would be continuing positive economic benefits to livestock grazers and wildlife outfitters by controlling the spread of invasive plant species and lower costs for hazardous fuel reduction to reduce costs of wildland fires. There would be potential for human health risks from incorrect herbicide use and exposure. Depending on the method of herbicide application, the potential exists for impacts from accidental drift from the treatment area into inhabited non-target areas.

Environmental Consequences, Alternative 2 (No Herbicide Use): Expenditures for treatment projects would require more labor than the previous alternatives, but overall would likely provide fewer positive short-term local economic impacts. There could be negative economic impacts to livestock grazers if invasive plant species are not effectively controlled and to wildland fire control programs if the accumulation of hazardous fuels is not effectively managed through other means. Human health risks would be lower than the other alternatives.

Mitigative Measures: None

Name of specialist and date: Mike Andrews, 02/17/09

SOILS

Affected Environment: Upland soil health has been characterized as good within the planning area. On rangelands where upland soil health has been evaluated it has been overwhelmingly stable, as determined by visual indicators of the soil surface characteristics. Rangeland soils that have not been stable are typically missing herbaceous plants in the interspace area. Many of the sites with stable soils were infested with downy brome (cheatgrass).

Cyanobacteria and moss are the most common types of biological soil crusts present on rangeland soils in the area. Biological soil crusts are important for protecting the soil surface from wind and water erosion especially on arid and/or badland. Micro-organisms and other fauna are important for decomposition, nutrient cycling, mixing organic matter in the upper portion of soil, soil aggregate stability and reducing soil compaction.

Environmental Consequences, Proposed Action: Some mechanical treatments such as plowing, disking and ripping would have the most pronounced effect on soil surfaces whereas, mowing or brush beating would have little effect on the soil surface. The intensity of the mechanical treatment, to partially remove vegetation or plow it under, and the total area affected by the treatment would determine the potential for erosion. The soil textures and slope are additional variables that would need to be considered.

It is anticipated that additional acres of downy brome infested rangelands would be treated by plowing and/or disking integrated with chemical applications and seeding of desirable plant materials to rehabilitate rangelands. These areas would experience increased surface runoff, sheet and rill erosion and wind erosion in the short term that would decrease in time. Disturbance to biological soil crusts (by burial) would be the greatest under this method. Studies of biological soil crust occurrence associated with dense stands of downy brome show a declining trend for crusts due to the shading effect of canopy and burial by litter.

Manual and biological treatment method effects on the soil resource would be negligible and would be largely the result of incidental use of ATVs and other vehicles used for transportation. Soil compaction, spills and leaks of lubricants or fuel and irresponsible operation of equipment would have the greatest effect on the soil resource. Impacts to the soil resource from using livestock in biological treatments are the same for livestock grazing impacts. However, more intensive grazing management concentrated in areas of weed infestation and shorter grazing durations would be prescribed. Although it would be necessary to time grazing to provide the most damage to the target weed, less impact to the soil resource would occur when soils are dry.

Chemical treatment effects on the soil resource would largely depend on the amount of vegetation treated. Increased surface runoff, wind and water erosion and reduced levels of organic matter would result if large areas of heavily infested rangelands were treated to remove all or most of the existing plant cover. Current use of “broad-leaf chemicals” have been used on large areas for control of hoary cress, but non-target vegetation such as shrubs have persisted and established grass plants that were suppressed quickly re-establish soil cover. Only a few studies

have been conducted to determine herbicide effects on biological soil crusts. Both positive and negative effects have been reported. In areas where biological soil crusts are well developed and are providing substantial stability to soils or in areas where crust recovery is a management goal, chemical applications should be tested on small areas and evaluated prior to widespread application. Few studies have focused on soil micro- and macroorganisms, but some results suggest that these soil organisms are temporarily adversely affected.

Environmental Consequences, Alternative 1 (No Action): Adverse and beneficial impacts to the soil resource would be the same as the Proposed Action, with the exception of using the active ingredient imazapic for the control of downy brome or utilizing new herbicide products that could prove more effective in the control of noxious weeds in the future.

Environmental Consequences, Alternative 2 (No Herbicide Use): Under this alternative infestations of noxious weeds would likely expand on all soil types without the use of chemical applications. Mechanical treatments would likely not be undertaken until the size of the infestation warranted implementation. Biological control may be more effective in the future as more insects and pathogens are found and approved for use.

Mitigative Measures: None

Name of specialist and date: Ole Olsen, 4/10/09

UPLAND VEGETATION

Affected Environment: Vegetation within the LSFO varies greatly depending on soil, climate, aspect, elevation and topography. Moisture and elevation are the factors most responsible for distribution of vegetation. Upland plant communities on public lands within the area include rangelands and forests/woodlands.

Rangelands comprise a variety of the vegetative communities in the area. Included in these are grassland and shrubland communities. In addition to the following descriptions of these areas more specific details and plant species can be found in the *LSFO RMP Draft (2007).*

Grasslands occur in the eastern one third of the planning area. On sandier soils, where water is more available and soil, climate or water availability restricts shrub establishment, desert grasslands commonly occur as a variant of shortgrass prairie. Saltgrass meadows occur in shallow depressions or adjacent to areas where ground water is near the surface. Some areas also include introduced seeded species, such as crested wheatgrass, where vegetation treatments were implemented or disturbances were mitigated through seeding.

Shrublands dominate most of the BLM administered lands in the LSFO. These communities are very diverse in plant composition and in the habitats and forage they provide to wildlife and livestock. Mountain shrub communities are important wildlife summer and transition ranges, as well as spring, fall and summer livestock ranges. Sagebrush communities are prominent across

the central portion of the LSFO. Saltbush vegetation can be found in the flat or rolling hills areas in the north central portion of the LSFO. Along the Wyoming border in the western quarter of the LSFO salt desert shrublands can be found characterized by drought tolerant shrubs with few grasses and forbs in the understory.

Forests and woodlands are another component of the upland vegetation in the LSFO. These areas are primarily located within three mountainous areas – Diamond Peak, Middle Mountain and Douglas Mountain. Additional areas are located on the fringe of USDA Forest Service boundaries. This vegetation is primarily comprised of ponderosa pine, Douglas fir, mixed spruce-fir, lodgepole pine, aspen and pinyon-juniper.

Rangeland and forest vegetation communities in the LSFO, as well as riparian areas and wetlands, contain levels of noxious and invasive plants invading native communities. In many cases populations are established where previous disturbance has occurred however they can also be found in undisturbed native plant communities. In addition to the threat of invasive forb species, non-native annual grass species (such as cheatgrass) provide a threatening impact to vegetation communities. Shrubland communities can be particularly susceptible to this invasion. Changes in native plant communities can lead to changes in biodiversity, wildlife habitat quality, fire regime and livestock forage production.

Environmental Consequences, Proposed Action: This alternative would result in the broadest impact to native upland vegetation, both positive and negative. It provides the best long term protection of native vegetation communities due to greater effectiveness of invasive plant control methods. This is the most inclusive alternative for implementing an IPM approach to evaluate all aspects of weed treatments in a native plant community and for consideration of mechanical, biological and chemical weed treatment methods. Additionally, this alternative is supported by the *PEIS* (BLM, 2007) and the associated *Record of Decision* which provided an extensive analysis of the effect of each herbicide on native vegetation. Those herbicides that were determined to be too risky for non-target plants and human resources were not included in the approved chemicals list.

Potential negative impacts to vegetation communities include chemical application to non-target vegetation, unintentional removal or trampling of plants during manual or mechanical treatment, reduced vigor to desirable affected plants, reduced seed production, canopy removal, shift in plant community species and potential for one invasive species to be controlled and another invasive species to replace it.

Despite the potential for negative effects from herbicide, manual, mechanical, or biological treatments in this alternative, the effect of not treating the invasive plants outweighs the potential adverse effects when compared to treatment methods applied under the SOPs and mitigation measures. Without treatment, invasive plant infestations would increase, spread and displace native plant communities.

Environmental Consequences, Alternative 1 (No Action): This alternative is similar to the

Proposed Action in potential effects of weed control methods. This alternative maintains a basic level of control for invasive and noxious weeds but is limited by the number of tools available to selectively target invasive species. This is especially true with the exclusion of imazapic that could be used to treat the most prominent weed in upland landscapes – cheatgrass.

Environmental Consequences, Alternative 2 (No Herbicide): This alternative is the most restrictive of the methods analyzed. Although the risk of potential herbicidal effects is removed for non-target species or potential contamination of soil by herbicide, other risks are still present. Non-target plant loss is still a possibility under mechanical and manual control methods. Additionally, these controls are more intensive in terms of costs and labor. These methods are not as efficient in controlling invasive species. Additionally, these methods are not well suited to early intervention and could result in population expansion or establishment in new areas.

Mitigative Measures: None

Name of specialist and date: Christina Rhyne, 2/19/09

WILDLIFE, AQUATIC

Affected Environment: Streams and riparian areas support aquatic wildlife within the LSFO. The Yampa and Little Snake Rivers, along with perennial creeks provide habitat for a number of fish species, including brook trout, rainbow trout, mottled sculpin and speckled dace. Smaller, ephemeral creeks, springs and riparian areas provide habitat for amphibians and non-vertebrate aquatic wildlife. Amphibians occurring within the resource area include western chorus frog, tiger salamanders, Great Basin spadefoot toad and northern leopard frogs.

Environmental Consequences, Proposed Action: Manual and biological methods for treating noxious weeds as proposed in this EA would have minimal impacts on fish or other aquatic vertebrate or invertebrate species. Chemical treatment may have some impacts to aquatic species. The following summaries of impacts to fish and other aquatic organisms are taken from the PEIS (BLM 2007a).

Fish and other aquatic organisms are exposed to chemical herbicides in three primary ways:

- Uptake through the skin during swimming in contaminated water
- Uptake through the gills during respiration in contaminated water
- Uptake through the digestive system during ingestion of prey from contaminated water

The major factor influencing the potential for exposure to fish is aerial drift from uplands onto non-target areas. Other means by which herbicides could reach aquatic habitats is through runoff from treated areas, inadvertent direct spraying and accidental spills.

Based on the ERA portion of the PEIS, the majority of the chemicals evaluated have little or no potential to negatively impact fish or aquatic invertebrates through acute exposures, and only one (diuron) has the potential to bioaccumulate in fish tissue. Acute toxicological effects to fish and

aquatic invertebrates of the herbicides evaluated in the ERA from direct or indirect exposure scenarios normally associated with weed treatments may be summarized as follows:

- Chlorsulfuron, Imazapic, Imazapyr, Metsulfuron Methyl, and Sulfometuron Methyl – Potentially high risk to fish due to the toxicity of ALS (acetolactate synthase) inhibitors.
- Bromacil – Low risk from direct spray and spills mixed for the maximum application rate. No risk from offsite drift or runoff.
- Dicamba, Diflufenzopyr, and Overdrive® (Dicamba + Diflufenzopyr) – No risk to fish and aquatic invertebrates from direct spray, spills, offsite drift, or runoff, at either the typical or maximum application rate.
- Diuron –Moderate to high risk to fish and aquatic invertebrates from direct spray or spills. Low risk to fish from runoff into streams, mostly at the maximum application rate. Low risk from aerial drift with proper buffers.
- Diquat and Glyphosate –For diquat, high risk to fish and aquatic invertebrates from spills and to aquatic invertebrates from direct spray; low risk to fish from direct spray. No risk from offsite drift or runoff at either application rate. Risks from use of glyphosate probably similar, except for formulations specifically licensed for use in aquatic sites.
- Fluridone – Moderate to high risk from direct spills; no or low risk from direct spray at the maximum application rate. No risk from offsite drift or runoff.
- Tebuthiuron – No acute risk from direct spray, offsite drift, or runoff. Potential acute risk to fish from spills. Low to moderate chronic risk to fish and invertebrates from direct spray and spills and to invertebrates from runoff.

The potential for effects on fish and other aquatic populations as a result of herbicide treatments would vary by the extent and method of treatment and chemical used. Herbicides could enter water bodies and come into contact with fish and aquatic invertebrates through drift, runoff, wind transport, accidental spills and direct spraying. Potential impacts include mortality, reduced productivity, abnormal growth, and alteration of important habitat. In general, risk to aquatic invertebrates and fish from spray drift is greater with smaller buffer zones, greater application rates and greater application heights (i.e., aerial application or ground application with a high boom). Risk to aquatic invertebrates and fish from surface runoff is influenced by precipitation rate, soil type and application area. There would be a risk to aquatic invertebrates and fish associated with most accidental exposure scenarios (i.e., direct spray or spill into a water body). Persistent herbicides (e.g., sulfometuron methyl) adsorbed to soil particles could also be carried off-site by wind or water, affecting fish and aquatic invertebrates in nearby aquatic areas. However, ERAs predicted no or low (diuron) risk to fish as a result of wind transport of herbicide particles under all evaluated scenarios. Application rate was a major factor in determining risk, with higher application rates more likely to pose a risk to fish under the various exposure scenarios.

Since most of the fish species within the LSFO are relatively short-lived (lifespans generally less than 7 years), the potential for chronic toxicity to the fish or to piscivorous predators that feed on them (e.g., bald eagle, double-crested cormorant, great blue heron) is generally minimal. Direct effects on aquatic larvae of amphibians (tiger salamander, leopard frog, western chorus frog) are expected to be comparable to those on the fishes described above.

Environmental Consequences, Alternative 1 – No Action: Environmental consequences for aquatic wildlife would similar to those of other wildlife species (See Threatened, Endangered, and Sensitive Wildlife Species Section). Control of cheatgrass would aid in maintaining quality riparian habitat since there would be less risk of increased sedimentation due to upland erosion. Imazapic is not an aquatic-approved herbicide and would not be used near suitable habitat for aquatic wildlife species.

Environmental Consequences, Alternative 2 – No Herbicide Use: This alternative would severely limit the ability to treat noxious and invasive plant species. Herbicides are an important tool that allow the BLM to control weeds and improve habitat for wildlife species.

Mitigative Measures: Mitigative measures can be found in Appendix 7.

Name of specialist and date: Desa Ausmus 8/31/10

WILDLIFE, TERRESTRIAL

Affected Environment: A variety of wildlife habitats and their associated species occur within the resource area. Each habitat type provides food, cover and shelter for a variety of mammal, bird, amphibian and reptile species common to northwest Colorado. Although all of the species are important members of native communities and ecosystems, most are common and have wide distributions within the state, region and field office.

Big game species include elk, mule deer, pronghorn, black bear and mountain lion. Smaller mammals such as coyotes, red fox, cottontail rabbits, ground squirrels and yellow-bellied marmots are common to this area. Reptile species present in the LSFO include short-horned lizards, sagebrush lizards and western rattlesnake. Birds and amphibians were discussed in the Migratory Bird and Aquatic Wildlife Sections of this EA.

Environmental Consequences, Proposed Action:

Neither manual removal or biological control of weed would be expected to have notable impacts to terrestrial wildlife species. Wildlife may be temporarily displaced during weed treatments, but this disturbance would be short in duration. Since most treatments would not occur during critical times, such as winter, these disturbances would have very little impact to wildlife species.

Chemical treatments: In general, field studies suggest that appropriate herbicide use is not likely to have significant direct toxicological effects on wildlife (PEIS). However, some potential exists to individuals, populations, or species with both proper and improper use of chemical controls (e.g., see USDA Forest Service [USFS] 2005). Possible adverse direct effects to individual animals include death, damage to vital organs, change in body weight, decrease in healthy offspring, and increased susceptibility to predation.

Based on the ERA in the PEIS, risks to terrestrial wildlife from weed treatments using herbicides would be as follows:

- Chlorsulfuron, Diflufenzopyr, Fluridone, Imazapic, and Sulfometuron Methyl – No risk to terrestrial wildlife from direct spray at either the typical or maximum application rate. No risk from ingesting contaminated vegetation or prey.
- Imazapyr – Low risk from direct spray for insects and small animals at the maximum application rate. Low risk from ingesting contaminated insects.
- Clopyralid, - Low risk from direct spray for insects at the maximum application rate, low risk to small animals from direct spray at both the typical and maximum rate. Low risk from ingesting contaminated insects and vegetation.
- Tebuthiuron – No risk from direct spray. Low risk from ingesting contaminated vegetation at the maximum rate for mammals.
- Metsulfuron Methyl – Low risk from direct spray for small animals at the maximum application rate. Low risk from ingesting contaminated insects and vegetation.
- Bromacil – Low risk from direct spray for insects at both application rates. Low to moderate risk from ingesting contaminated vegetation or prey for mammals. Impacts to birds unlikely.
- Dicamba – Low risk from direct spray for insects at maximum application rate. Low to moderate risk from ingesting contaminated vegetation or prey.
- Picloram – Low risk from direct for insects and small animals. Low to moderate risk from ingesting contaminated vegetation or prey.
- Overdrive – No risk from direct spray, low to moderate risk to large mammals from ingesting contaminated vegetation.
- Diquat – Low risk from direct spray for insects. Low to moderate risk from ingesting contaminated vegetation or prey.
- Diuron – Low risk from direct spray for insects. Low to moderate risks from ingesting contaminated vegetation or prey for most wildlife. High risk to large mammals ingesting contaminated vegetation at the maximum application rate.
- Triclopyr and Hexazinone – Low to moderate risk from direct spray for most wildlife. Low to moderate risk from ingesting contaminated vegetation or prey.
- Glyphosate – Low to moderate risk from direct spray, low to moderate risk from ingestion contaminated vegetation or prey.
- 2,4-D – Low to moderate risk from direct spray, low to high risk from ingesting contaminated vegetation or prey

Adverse indirect effects include reduction in plant species diversity and consequent availability of preferred food or habitat, decrease in wildlife population densities within the first year following application as a result of limited reproduction, habitat and range disruption if treated areas are avoided due to habitat changes and increase in predation of due to loss of cover.

Because of the relatively low risk of toxicological effects to most wildlife even with direct spraying, it can be said that the main risks to terrestrial wildlife from herbicide use is ingestion of contaminated vegetation or prey and habitat modification.

The extent of direct and indirect impacts to wildlife would vary by the effectiveness of herbicide treatments in controlling target plants and promoting the growth of native vegetation, as well as by the extent and method of treatment and chemical used, the physical features of the terrain and weather conditions. The impacts of herbicides on wildlife would depend on the sensitivity of each species to the particular herbicides used, the pathway by which the individual animal was exposed to the herbicide and indirectly on the degree to which a species or individual was positively or negatively affected by changes in habitat. Species that reside in an area year-round and have a small home range would have a greater chance of being directly impacted. In addition, species feeding on animals that have been exposed to high levels of herbicides would be more likely to be impacted, particularly if the herbicide bioaccumulates in their tissues.

The impacts of herbicide use on wildlife would primarily be site- and application-specific, and as such, site assessments would have to be performed at the field level, during the PUP process.

Environmental Consequences, Alternative 1 – No Action: Under this alternative, the LSFO would not be permitted to use the herbicides difluenzopyr, diquat, fluridone, and imazapic. Diquat and floridone are seldom used to treat weed within the LSFO and difluenzopyr is primarily used to treat bare ground on oil and gas pads. The ability to use these chemicals would make little difference to weed treatments within the resource area.

The ability to use imazapic would help enhance wildlife habitat throughout the resource area. Imazapic targets cheatgrass, a non-native annual grass that degrades habitat by suppressing native vegetation. Imazapic has a low toxicity to terrestrial wildlife species and effective use of it as part of a program to improve habitat conditions would be beneficial.

Environmental Consequences, Alternative 2 – No Herbicide Use: This alternative would severely limit the BLM's ability to treat noxious and invasive plant species. This alternative would make it very difficult for the BLM to control weed infestations. It can be expected that habitats for many wildlife species would deteriorate, having a negative impact on terrestrial wildlife.

Mitigative measures: Mitigative measures are found in Appendix 7.

Name of specialist and date: Desa Ausmus 8/31/10

References:

U.S. Forest Service (USFS). 2005. Preventing and Managing Invasive Plants, Final Environmental Impact Statement. Seattle, Washington. http://www.fs.fed.us/r6/invasiveplant-eis/.

OTHER NON-CRITICAL ELEMENTS: For the following elements, those brought forward for analysis will be formatted as shown above.

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact or Covered in EIS*	Applicable & Present and Brought Forward for Analysis
Fluid Minerals		MDW 02/09/09	
Forest Management		CBR 02/18/09	
Hydrology/Ground		MDW 02/09/09	
Hydrology/Surface		OO 3/24/09	
Paleontology		MDW 02/09/09	
Range Management		CBR 02/18/09	
Realty Authorizations		MAA 02/13/09	
Recreation/Travel Mgmt		GMR 02/10/09	
Socio-Economics			See Socioeconomics
Solid Minerals		JAM 02/10/09	
Visual Resources		GMR 02/10/09	
Wild Horse & Burro Mgmt		CBR 02/18/09	

*In reference to the *Vegetation Treatments Using Herbicide in 17 Western State, Programmatic Environmental Impact Statement, (BLM 2007*).

CUMULATIVE IMPACTS SUMMARY:

The issues and resources analyzed within this EA are applicable to the implementation of weed management in the LSFO based on a determination by the PEIS that use of herbicides for weed treatment could result in adverse impacts. The PEIS concluded that risks to these resources and human uses would be minimized given restriction and other protections incorporated into the use of herbicides on public lands. The greatest risk of adverse impacts associated with chemical treatment would result from spills of herbicides or associated chemicals, drift to non-target vegetation or their inappropriate application. Additional losses are possible through other weed control methods (mechanical, manual and biological) as well. However, the impact of not treating noxious or invasive weeds is far greater to the larger ecosystem than the potential losses within a localized treated area when methods are applied under established guidelines.

STANDARDS

The proposed action includes the entire Little Snake Field Office Resource area. There is no encompassing assessment of this area available to represent this scale.

Proposed Action:

Sites not meeting standards due to noxious weeds may be improved under the proposed action. Plant and animal communities would be improved including those with special status and threatened and endangered species. Riparian systems, water quality and upland soils would all benefit from the weed treatment methods available under the proposed action.

Alternative 1 (No Action):
Some sites not meeting standards due to noxious weeds would be improved under this alternative. Sites infested with cheatgrass would not benefit with the selection of Alternative 1. This would include those plant and animal communities not meeting standards due to cheatgrass. Special status and threatened and endangered plants and animals standards would be maintained under this alternative as would water quality and upland soils standards.

Alternative 2 (No Herbicide Use):
Under this alternative noxious weeds would have the highest probability of causing or contributing to standards not being met.

PERSONS/AGENCIES CONSULTED: Uintah and Ouray Tribal Council, Colorado Native American Commission, Colorado State Historic Preservation Office, Moffat County Pest Management.

MITIGATION MEASURES:

- **BLM Archaeological Mitigation**
  1. All projects involving seeding, mechanical treatments, or hand treatments must be reviewed by cultural resource staff to ascertain necessary actions under Section 106 of the National Historic Preservation Act of 1966.

  2. The applicator is responsible for informing all persons associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the applicator is to immediately stop activities in the vicinity of the find and contact the authorized officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator:

  - Whether the materials appear eligible for the National Register of Historic Places;
  - The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and
  - Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

  3. If the applicator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the applicator will be responsible for mitigation costs. The AO

will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the applicator will then be allowed to resume operations.

COMPLIANCE PLAN(S): None

ATTACHMENTS: #1 – Colorado Noxious Weed List
#2 – Little Snake Field Office Noxious Weed Prevention Plan
#3 – LSFO PUP Attachment
#4 – BLM Approved Herbicides and Adjuvants
#5 – BLM Approved Rates
#6 – Standard Operating Procedures
#7 – Mitigation Measures

SIGNATURE OF PREPARER:

DATE SIGNED:

SIGNATURE OF ENVIRONMENTAL REVIEWER:

DATE SIGNED:

Finding of No Significant Impact

The environmental assessment, analyzing the environmental effects of the proposed action, has been reviewed. With the implementation of the attached mitigation measures there is a finding of no significant impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

1. Beneficial, adverse, direct, indirect, and cumulative environmental impacts have been disclosed in the EA. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Little Snake Resource Area and adjacent land.

2. Public health and safety would not be adversely impacted. There are no known or anticipated concerns with project waste or hazardous materials.

3. There would be no adverse impacts to regional or local air quality, prime or unique farmlands, known paleontological resources on public land within the area, wetlands, floodplain, areas with unique characteristics, ecologically critical areas or designated Areas of Critical Environmental Concern.

4. There are no highly controversial effects on the environment.

5. There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature.

6. This alternative does not set a precedent for other actions that may be implemented in the future to meet the goals and objectives of adopted Federal, State or local natural resource related plans, policies or programs.

7. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.

8. Based on previous and ongoing cultural surveys, and through mitigation by avoidance, no adverse impacts to cultural resources were identified or anticipated. There are no known American Indian religious concerns or persons or groups who might be disproportionately and adversely affected as anticipated by the Environmental Justice Policy.

9. No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act were identified. If, at a future time, there could be the potential for adverse impacts, treatments would be modified or mitigated not to have an adverse effect or new analysis would be conducted.

10. This alternative is in compliance with relevant Federal, State, and local laws, regulations, and requirements for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL:

DATE SIGNED:

ATTACHMENT #1
DOI-BLM-CO-N010-2009-0025-EA
Colorado Noxious Weed List
Weeds shown in **bold** are currently known to occur or be species of concern in the LSFO. Future inventory data may modify that status.

List A - species in Colorado that are designated by the Commissioner for eradication:

African rue (*Peganum harmala*)
Camelthorn (*Alhagi pseudalhagi*)
Common crupina (*Crupina vulgaris*)
Cypress spurge (*Euphorbia cyparissias*)
Dyer's woad (*Isatis tinctoria*)
Giant salvinia (*Salvinia molesta*)
Hydrilla (*Hydrilla verticillata*)
Meadow knapweed (*Centaurea pratensis*)
Mediterranean sage (*Salvia aethiopis*)
Medusahead (*Taeniatherum caput-medusae*)
Myrtle spurge (*Euphorbia myrsinites*)
Orange hawkweed (*Hieracium aurantiacum*)
Purple loosestrife (*Lythrum salicaria*)
Rush skeletonweed (*Chondrilla juncea*)
Sericea lespedeza (*Lespedeza cuneata*)
Squarrose knapweed (*Centaurea virgata*)
Tansy ragwort (*Senecio jacobaea*)
Yellow starthistle (*Centaurea solstitialis*)

List B - species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, develops and implements state noxious weed management plans designed to stop the continued spread of these species:

Absinth wormwood (*Artemisia absinthium*)
Black henbane (*Hyoscyamus niger*)
Bouncingbet (*Saponaria officinalis*)
Bull thistle (*Cirsium vulgare*)
Canada thistle (*Cirsium arvense*)
Chinese clematis (*Clematis orientalis*)
Common tansy (*Tanacetum vulgare*)
Common teasel (*Dipsacus fullonum*)
Corn chamomile (*Anthemis arvensis*)
Cutleaf teasel (*Dipsacus laciniatus*)
Dalmatian toadflax, broad-leaved (*Linaria dalmatica*)
Dalmatian toadflax, narrow-leaved (*Linaria genistifolia*)
Dame's rocket (*Hesperis matronalis*)
Diffuse knapweed (*Centaurea diffusa*)
Eurasian watermilfoil (*Myriophyllum spicatum*)
Hoary cress (*Cardaria draba*)
Houndstongue (*Cynoglossum officinale*)
Leafy spurge (*Euphorbia esula*)
Mayweed chamomile (*Anthemis cotula*)
Moth mullein (*Verbascum blattaria*)
Musk thistle (*Carduus nutans*)
Oxeye daisy (*Chrysanthemum leucanthemum*)
Perennial pepperweed (*Lepidium latifolium*)
Plumeless thistle (*Carduus acanthoides*)
Quackgrass (*Elytrigia repens*)
Redstem filaree (*Erodium cicutarium*)
Russian knapweed (*Acroptilon repens*)
Russian-olive (*Elaeagnus angustifolia*)
Salt cedar (*Tamarix chinensis, T.parviflora, and T. ramosissima*)
Scentless chamomile (*Matricaria perforata*)
Scotch thistle (*Onopordum acanthium*)
Scotch thistle (*Onopordum tauricum*)
Spotted knapweed (*Centaurea maculosa*)
Spurred anoda (*Anoda cristata*)
Sulfur cinquefoil (*Potentilla recta*)
Venice mallow (*Hibiscus trionum*)
Wild caraway (*Carum carvi*)
Yellow nutsedge (*Cyperus esculentus*)
Yellow toadflax (*Linaria vulgaris*)

Colorado Noxious Weed List (continued)

List C species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective Integrated Pest Management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.

Chicory (*Cichorium intybus*)
Common burdock (*Arctium minus*)
Common mullein (*Verbascum thapsus*)
Common St. Johnswort (*Hypericum perforatum*)
Downy brome (*Bromus tectorum*)
Field bindweed (*Convolvulus arvensis*)
Halogeton (*Halogeton glomeratus*)
Johnsongrass (*Sorghum halepense*)
Jointed goatgrass (*Aegilops cylindrica*)
Perennial sowthistle (*Sonchus arvensis*)
Poison hemlock (*Conium maculatum*)
Puncturevine (*Tribulus terrestris*)
Velvetleaf (*Abutilon theophrasti*)
Wild proso millet (*Panicum miliaceum*)

ATTACHMENT #2
DOI-BLM-CO-N010-2009-0025-EA

Little Snake Field Office Noxious Weed Prevention Plan

Noxious Weed Prevention Practices

General Management Actions
• Apply integrated management practices utilizing mechanical control, biological control and herbicides where each method, or combination of methods, is effective. • Target management of disturbed areas such as roads, right-of ways and recreation sites. • Detect new invaders first and control small populations of priority second. • Develop public education in local area. • Enhance cooperation and coordination efforts with other Federal agencies, State and county/local governments, other organizations, and private landowners. • Incorporate appropriate Best Management Practices from attached list.

Early Detection
• Provide training to field personnel in the identification of noxious weed species known to occur in the area and in preventative measures. Attention should be given to equipment operators, fire personnel and annual seasonal employees. • Make noxious weed identification handbooks available to all field going personnel. • Make inventory and noxious weed occurrence information readily available to field personnel and personnel actively involved in planning and designing projects. • Encourage field staff, landowners, and managers to recognize and document noxious weed populations. • Develop education and awareness programs where visitors and users of the lands assist managers in locating and identifying new invader species. • Conduct systematic and periodic inventories to detect new noxious and invasive weed infestations.

Fire and Fuels Management for Wildland Fires and Fuels/Vegetation Treatment
• Vehicles entering a site should be clean and weed free. Require the cleaning of fire equipment following fire activities in noxious weed-infested areas. If possible complete the cleaning before leaving the fire site. • Consider noxious weed prevention measure in all fire rehabilitation plans by including noxious weed input on the rehabilitation team. • Require certified noxious weed-free seed or testing at a suitable laboratory before allowing use of the seed in fire rehabilitation projects. • Avoid staging equipment and resources in noxious weed areas. • Avoid off-road travel in noxious weed-infested areas. • Include a noxious weed control and monitoring plan and a map of noxious weed infestations of significance in the area as part of the environmental analysis before conducting any fuels/vegetation treatments.

Land Use Planning
• Work with federal, county, and city planning staff and zoning committees to include consideration of noxious weed management when developing or approving plans, permits, or leases. • Include noxious and invasive weed risk factors and prevention considerations in all environmental analyses for projects, permits, plans, and alternative development.

Lands
• Evaluate private lands being considered for federal acquisition through purchase, exchange or donation for the presence of noxious weeds. • Include a requirement to control noxious weeds on federally authorized actions.

Livestock Management

- Avoid trailing livestock through noxious weed infested areas. Where possible trail on roadways where detection of noxious weeds is more likely to occur.
- Allow only certified noxious weed-free hay and grain or pelletized feeds to be fed on federally managed lands.
- Manage grazing allotments to prevent excessive soil disturbance at salt licks, watering sites, and other livestock concentration areas.
- Avoid grazing any reseeded sites until vegetation is well established.
- Hold livestock used in the cultural management of noxious weeds in a noxious weed free environment for a period of time before and after moving the livestock into the weed management area to allow time to clean their digestive tract of noxious weed seeds.

Recreation Management

- Require that all pack and saddle stock use only certified noxious weed-free feeds and bedding.
- Sign trail heads and campgrounds for noxious weed awareness, noxious weed prevention and noxious weed reporting techniques as appropriate.

Surface Disturbance

- Minimize the amount of surface disturbance to reduce the potential area for noxious and invasive weed establishment. Re-establish vegetation on all disturbed soil from construction, reconstruction and maintenance activities except travel ways.
- Complete reseeding during the first available period.
- Require certified noxious weed free seed or testing at an acceptable laboratory before allowing use of seed for a reclamation or rehabilitation project.
- Require certified noxious weed free straw or hay for use as mulch.
- Require cleaning of construction equipment prior to moving into noxious weed-free areas or leaving known noxious weed-infested areas.
- Inspect gravel pits and fill sources to ensure the material comes from noxious weed-free sources.
- Monitor construction site for noxious weed control needs until vegetation is reestablished.
- Retain reclamation bonds for noxious weed control until the site is returned to the desired vegetative condition.
- Remove noxious weed seed sources from adjacent sites or from the access route that may contaminate the construction site.

Travel Management
• Survey roads for presence of noxious weed sources prior to maintenance activities. Control noxious weeds if necessary before maintaining the roadway. • Reseed disturbed areas that are not part of the road running surface or that are not needed for maintenance purposes. • Retain desirable roadside vegetation to discourage noxious weed infestations. • Remove noxious weed seed sources or control noxious weeds that could be picked up by passing vehicles on significant access routes. • Ensure that noxious weed prevention and related resource protection is considered in travel management plans.

Best Management Practices for Noxious and Invasive Weed Prevention

This list incorporates many suggested practices under many types of land management operation types and is designed to allow managers to pick and choose those practices that are most applicable and feasible for each situation (Modified from *Dinosaur National Monument Invasive Plant Management Plan and Environmental Assessment, National Park Service, DOI 2005*).

A. Site-Disturbing Projects

Pre-project Planning

- Environmental analyses for projects and maintenance programs should assess weed risks, analyze high-risk sites for potential weed establishment and spread, and identify prevention practices.

- Determine site-specific restoration and monitoring needs and objectives at the onset of project planning.

- Learn to recognize noxious and invasive weeds.

- Inventory all proposed projects for weeds prior to ground-disturbing activities. If weeds are found, they would be treated (if the timing was appropriate) or removed (if seeds were present) to limit weed seed production and dispersal.

- Restrict movement of equipment and machinery *from* weed-contaminated areas *to* non-contaminated areas.

- Locate and use weed-free project staging areas. Avoid or minimize travel through weed infested areas, or restrict travel to periods when spread of disseminules is least likely.

- Identify sites where equipment can be cleaned. Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Seeds and plant parts should be collected and incinerated when possible.

- If certified weed-free gravel pits become available in the county, the use of certified weed-free gravel would be required wherever gravel is applied to public lands (e.g., roads).

- Maintain stockpiled, non-infested material in a weed-free condition. Topsoil stockpiles should be promptly revegetated to maintain soil microbial health and reduce the potential for weeds.

- Use native seed mixes when practical. A certified seed laboratory should test each lot according to Association of Official Seed Analysts standards (which include an all-state noxious weed list) and provide documentation of the seed inspection test. The seed

should contain no noxious, prohibited, or restricted weed seeds and should contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended.

Project Implementation

- Minimize soil disturbance. To the extent practicable, native vegetation should be retained in and around project activity areas, and soil disturbance kept to a minimum.

- If a disturbed area must be left bare for a considerable length of time, cover the area with weed barrier until revegetation is possible.

Post-project

- Clean all equipment before leaving the project site when operating in weed infested areas.

- Inspect, remove, and properly dispose of weed seed and plant parts found on clothing and equipment. Proper disposal means bagging and incinerating seeds and plant parts or washing equipment in an approved containment area.

- Revegetate disturbed soil where appropriate to optimize plant establishment for that specific site. Define revegetation objectives for each site. Revegetation may include topsoil replacement, planting, seeding, fertilization, and certified weed-free mulching as necessary. Use native material where appropriate and feasible.

- Monitor sites where seed, hay, straw, or mulch has been applied. Eradicate weeds before they form seed. In contracted projects, contract specifications could require that the contractor control weeds for a specified length of time.

- Inspect and document all ground-disturbing activities in noxious weed infested areas for at least three growing seasons following completion of the project. For ongoing projects, continue to monitor until reasonably certain that no weeds are present. Plan for follow-up treatments based on inspection results.

B. Roads and Utilities

Pre-project Planning

- Communicate with contractors, local weed districts or weed management areas about projects and best management practices for prevention.

- Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Seeds and plant parts should be collected and incinerated when practical, or washed off in an approved containment area.

- Avoid acquiring water for road dust abatement where access to water is through weed-infested sites.

- Treat weeds on travel rights-of-ways before seed formation so construction equipment doesn't spread weed seed.

- Schedule and coordinate blading or pulling of noxious weed-infested roadsides or ditches in consultation with the local weed specialist. When it is necessary to blade weed-infested roadsides or ditches, schedule the activity when disseminules are least likely to be viable.

Project Implementation

- Retain shade to suppress weeds by minimizing the removal of trees and other roadside vegetation during construction, reconstruction, and maintenance; particularly on south aspects.

- Do not blade or pull roadsides and ditches infested with noxious weeds unless doing so is required for public safety or protection of the roadway. If the ditch must be pulled, ensure weeds remain onsite. Blade from least infested to most infested areas.

Post-project

- Clean all equipment (power or high-pressure cleaning) of all mud, dirt, and plant parts before leaving the project site if operating in areas infested with weeds. Seeds and plant parts should be collected and incinerated when possible.

- When seeding has been specified for construction and maintenance activities, seed all disturbed soil (except travel route) soon after work is completed.

- Use a certified weed-free seed mix suitable for local environmental conditions that includes fast, early growing (preferably native) species to provide quick revegetation. Consider applying weed-free mulch with seeding.

- Periodically inspect roads and rights-of-way for noxious weeds. Train staff to recognize weeds and report locations to the local weed specialist. Follow-up with treatment when needed.

- When reclaiming roads, treat weeds before roads are made impassable. Inspect and follow up based on initial inspection and documentation.

- To avoid weed infestations, create and maintain healthy plant communities whenever possible, including utility rights-of-ways, roadsides, scenic overlooks, trailheads, and campgrounds.

C. Wilderness Recreation

- Inspect and clean mechanized trail vehicles of weeds and weed seeds.
- Wash boots and socks before hiking into a new area. Inspect and clean packs, equipment, and bike tires.
- Avoid hiking through weed infestations whenever possible.
- Keep dogs and other pets free of weed seeds.
- Avoid picking unidentified "wildflowers" and discarding them along trails or roadways.
- Maintain trailheads, campgrounds, visitor centers, boat launches, picnic areas, roads leading to trailheads, and other areas of concentrated public use in a weed-free condition. Consider high-use recreation areas as high priority sites for weed eradication.
- Sign trailheads and access points to educate visitors on noxious and invasive weeds and the consequences of their activities.
- In areas susceptible to weed invasion, limit vehicles to designated, maintained travel routes. Inspect and document travel corridors for weeds and treat as necessary.

D. Watershed Management

- Frequently and systematically inspect and document riparian areas and wetlands for noxious weed establishment and spread. Eradicate new infestations immediately since effective tools for riparian-area weed management are limited.
- Promote dense growth of desirable vegetation in riparian areas (where appropriate) to minimize the availability of germination sites for weed seeds or propagules transported from upstream or upslope areas.
- Address the risk of invasion by noxious weeds and other invasive species in watershed restoration projects and water quality management plans.

E. Grazing Management

- Consider prevention practices and cooperative management of weeds in grazing allotments. Prevention practices may include:
    - Altering season of use
    - Minimizing ground disturbance
    - Exclusion
    - Preventing weed seed transportation
    - Maintaining healthy vegetation
    - Revegetation
    - Inspection
    - Education
    - Reporting

- Provide certified weed-free supplemental feed in a designated area so new weed infestations can be detected and treated immediately. Pelletized feed is unlikely to contain viable weed seed.

- If livestock may contribute to seed spread in a weed-infested area, schedule livestock use prior to seed-set or after seed has fallen.

- If livestock were transported from a weed-infested area, annually inspect and treat entry units for new weed infestations.

- Consider closing infested pastures to livestock grazing when grazing will either continue to exacerbate the condition or contribute to weed seed spread. Designate those pastures as unsuitable range until weed infestations are controlled.

- Manage the timing, intensity (utilization), duration, and frequency of livestock activities to maintain the competitive ability of desirable plants and retain litter cover. The objective is to prevent grazers from selectively removing desirable plant species and leaving undesirable species.

- Exclude livestock grazing on newly seeded areas with fencing to ensure that desired vegetation is well established, usually after 2-3 growing seasons.

- Reduce ground disturbance, including damage to biological soil crusts. Consider changes in the timing, intensity, duration, or frequency of livestock use; location and changes in salt grounds; restoration or protection of watering sites; and restoration of yarding/loafing areas, corrals, and other areas of concentrated livestock use.

- Inspect areas of concentrated livestock use for weed invasion, especially watering locations and other sensitive areas that may be particularly susceptible to invasion. Inventory and manage new infestations.

- Defer livestock grazing in burned areas until vegetation is successfully established, usually after 2-3 growing seasons.

F. Outfitting / Recreation Pack and Saddle Stock Use

- Allow only certified weed-free hay/feed on BLM lands.

- Inspect, brush, and clean animals (especially hooves and legs) before entering public land. Inspect and clean tack and equipment.

- Regularly inspect trailheads and other staging areas for backcountry travel. Bedding in trailers and hay fed to pack and saddle animals may contain weed seed or propagules.

- Tie or contain stock in ways that minimize soil disturbance and prevent loss of desirable native species.

- Authorized trail sites for tying pack animals should be monitored several times per growing season to quickly identify and eradicate new weeds. Trampling and permanent damage to desired plants are likely. Tie-ups should be located away from water and in shaded areas where the low light helps suppress weed growth.

- Educate outfitters to look for, and report, new weed infestations.

G. Wildlife

- Periodically inspect and document areas where wildlife concentrate in the winter and spring and cause excess soil disturbance.

- Use weed-free materials for all wildlife management activities.

- Incorporate weed prevention into all wildlife habitat improvement project designs.

H. Fire

Fire Management Plans

- Prescribed fire plans should include pre-burn invasive weed inventory and risk assessment components as well as post-burn mitigation components.

- Integrate prescribed fire and other weed management techniques to achieve best results. This may involve post-burn herbicide treatment or other practices that require careful timing.

- Include weed prevention and follow-up monitoring in all prescribed fire activities. Include in burn plans the possibility for post-burn weed treatment.

Incident Planning

- Increase weed awareness and weed prevention by providing training to new and/or seasonal fire staff on invasive weed identification and prevention.

- For prescribed burns, inventory the project area and evaluate potential weed spread with regard to the fire prescription. Areas with moderate to high weed cover should be managed for at least 2 years prior to the prescribed burn to reduce the number of weed seeds in the soil. Continue weed management after the burn.

- Ensure that a weed specialist is included on a Fire Incident Management Team when wildfire or prescribed operations occur in or near a weed-infested area. Include a discussion of weed prevention operational practices in all fire briefings.

- Use operational practices to reduce weed spread (e.g., avoid weed infestations when locating fire lines).

- Identify and periodically inspect potential helispots, staging areas, incident command posts, base camps, etc. and maintain a weed-free condition. Encourage network airports and helibases to do the same.

- Develop a burned-area Integrated Pest Management plan, including a monitoring component to detect and eradicate new weeds early.

Fire-fighting

- Ensure that all equipment (including borrowed or rental equipment) is free of weed seed and propagules before entering incident location.

- When possible, use fire suppression tactics that reduce disturbances to soil and vegetation, especially when creating fire lines.

- Use wet or scratch-lines where possible instead of fire breaks made with heavy equipment.

- Given the choice of strategies, avoid ignition and burning in areas at high risk for weed establishment or spread.

- Hose off vehicles on site if they have traveled through infested areas.

- Inspect clothing for weed seeds if foot travel occurred in infested areas.

- When possible, establish incident bases, fire operations staging areas, and aircraft landing zones in areas that have been inspected and are verified to be free of invasive weeds.

- Cover weed infested cargo areas and net-loading areas with tarps if weeds exist and can't be removed or avoided.

- Flag off high-risk weed infestations in areas of concentrated activity and show weeds on facility maps.

- If fire operations involve travel or work in weed infested areas, a power wash station should be staged at or near the incident base and helibase. Wash all vehicles and equipment upon arrival from and departure to each incident. This includes fuel trucks and aircraft service vehicles.

- Identify the need for possible fire rehab to prevent or mitigate weed invasion during fire incident and apply for funding during the incident.

Post-fire Rehabilitation

- Have a weed specialist review burned area rehabilitation reports to ensure proper and effective weed prevention and management is addressed.

- Thoroughly clean the undercarriage and tires of vehicles and heavy equipment before entering a burned area.

- Treat weeds in burned areas. Weeds can recover as quickly as 2 weeks following a fire.

- Schedule inventories 1 month and 1 year post-fire to identify and treat infestations. Eradicate or contain newly emerging infestations.

- Restrict travel to established roads to avoid compacting soil that could hinder the recovery of desired plants.

- Determine soon after a fire whether revegetation is necessary to speed recovery of a native plant community, or whether desirable plants in the burned area will recover naturally. Consider the severity of the burn and the proportion of weeds to desirable plants on the land before it burned. In general, more severe burns and higher pre-burn weed populations increase the necessity of revegetation. Use a certified weed-free native seed mix.

- Inspect and document weed infestations on fire access roads, equipment cleaning sites, and staging areas. Control infestations to prevent spread within burned areas.

- Seed and straw mulch to be used for burn rehabilitation (for wattles, straw bales, dams, etc.) should be certified weed-free.

- Replace soil and vegetation right side up when rehabbing fire line.

Prepared by:

Weed Program Coordinator	Date

Reviewed / Recommended by:

Associate Field Manager (Resources)	Date
Assistant Field Manager (Lands and Minerals)	Date
Fire Management Officer	Date

Approved By:

Field Manager, LSFO	Date

ATTACHMENT #3
DOI-BLM-CO-N010-2009-0025-EA

BLM LSFO PUP Stipulations

General Stipulations:

- All herbicide treatments on BLM administered lands will comply with applicable federal and state statutory and regulatory requirements.
- Manufacturers label directions and guidelines, including but not limited to, application rates, uses, handling instructions, storage and disposal requirements, will be followed
- All BLM procedures (BLM Handbook H-9011-1 Chemical Pest Control) and Manuals 1112 Safety, 9011 Chemical Pest Control, and 9015 Integrated Weed Management, and any other BLM requirements will be followed. Where more restrictive, BLMs requirements for rates, uses, and handling instructions will apply.
- Only certified applicators, or those directly supervised by a certified applicator, may apply herbicide on BLM administered public lands.

To ensure that risks to human health and the environment from herbicide treatments are kept to a minimum, and that all practicable means to avoid or minimize environmental harm have been adopted, the following will apply:

- All herbicide treatments will be consistent with the Standard Operating Procedures (SOPs) presented in the ROD of the 2007 Final *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS).
- Measures to mitigate potential adverse environmental effects as a result of herbicide treatments as found in the ROD of the PEIS.
- All conservation measures, designed to protect plants and animals listed or proposed for listing as threatened or endangered under the Endangered Species Act, as found in the Biological Assessment of the PEIS.

Cultural Resources Discovery

The applicator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the authorized officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places;
- The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and
- Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

ATTACHMENT #4
DOI-BLM-CO-N010-2009-0025-EA
BLM Approved Herbicides and Adjuvants
This list is updated by BLM regularly. Always reference most current data.

*Herbicides Approved for Use on BLM Lands**

Updated October 10, 2008

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Bromacil	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Bromacil 80DF	Alligare, LLC	81927-4	Y
		Hyvar X	DuPont	352-287	Y
		Hyvar XL	DuPont	352-346	Y
Bromacil + Diuron	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Bromacil/Diuron 40/40	Alligare, LLC	81927-3	Y
		Krovar I DF	DuPont	352-505	Y
		Weed Blast Res. Weed Cont.	Loveland Products Inc.	34704-576	N
		DiBro 2+2	Nufarm Americas Inc.	228-227	Y
		DiBro 4+4	Nufarm Americas Inc.	228-235	N
		DiBro 4+2	Nufarm Americas Inc.	228-386	N
		Weed Blast 4G	SSI Maxim	34913-19	N
Chlorsulfuron	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Telar DF	DuPont	352-522	Y
		Telar XP	DuPont	352-654	Y
Clopyralid	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Spur	Albaugh, Inc.	42750-89	N
		Pyramid R&P	Albaugh, Inc.	42750-94	N
		Clopyralid 3	Alligare, LLC	42750-94-81927	Y
		Cody Herbicide	Alligare, LLC	81927-28	Y
		Reclaim	Dow AgroSciences	62719-83	N
		Stinger	Dow AgroSciences	62719-73	Y
		Transline	Dow AgroSciences	62719-259	Y
		CleanSlate	Nufarm Americas Inc.	228-491	Y
Clopyralid + 2,4-D	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Curtail	Dow AgroSciences	62719-48	N
		Commando	Albaugh, Inc.	42750-92	N
2,4-D	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Agrisolution 2,4-D LV6	Agriliance, L.L.C.	1381-101	N
		Agrisolution 2,4-D Amine 4	Agriliance, L.L.C.	1381-103	N
		Agrisolution 2,4-D LV4	Agriliance, L.L.C.	1381-102	N
		2,4-D Amine 4	Albaugh, Inc./Agri Star	42750-19	Y
		2,4-D LV 4	Albaugh, Inc./Agri Star	42750-15	Y
		Solve 2,4-D	Albaugh, Inc./Agri Star	42750-22	Y
		2,4-D LV 6	Albaugh, Inc./Agri Star	42750-20	N
		Five Star	Albaugh, Inc./Agri Star	42750-49	N
		D-638	Albaugh, Inc./Agri Star	42750-36	N
		2,4-D LV6	Helena Chem. Co.	4275-20-5905	N
		2,4-D Amine	Helena Chem. Co.	5905-72	N
		Opti-Amine	Helena Chem. Co.	5905-501	N

BLM Approved Herbicides and Adjuvants (continued)

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
2,4-D - cont.	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Barrage HF	Helena	5905-529	N
		HardBall	Helena	5905-549	N
		Unison	Helena	5905-542	N
		Amine 4CA 2,4-D Weed Killer	Loveland Products Inc.	34704-5	Y
		Clean Amine	Loveland Products Inc.	34704-120	N
		Low Vol 4 Ester Weed Killer	Loveland Products Inc.	34704-124	N
		Low Vol 6 Ester Weed Killer	Loveland Products Inc.	34704-125	N
		LV-6 Ester Weed Killer	Loveland Products Inc.	34704-6	Y
		Saber	Loveland Products Inc.	34704-803	N
		Saber CA	Loveland Products Inc.	34704-803	Y
		Salvo	Loveland Products Inc.	34704-609	N
		Savage DF	Loveland Products Inc.	34704-606	Y
		Aqua-Kleen	NuFarm Americas Inc.	71368-4	N
		Esteron 99C	NuFarm Americas Inc.	62719-9-71368	N
		Weedar 64	NuFarm Americas Inc.	71368-1	Y
		Weedone LV-4	NuFarm Americas Inc.	228-139-71368	Y
		Weedone LV-4 Solventless	NuFarm Americas Inc.	71368-14	Y
		Weedone LV-6	NuFarm Americas Inc.	71368-11	Y
		Formula 40	Nufarm Americas Inc.	228-357	Y
		2,4-D LV 6 Ester	Nufarm Americas Inc.	228-95	Y
		Platoon	Nufarm Americas Inc.	228-145	N
		WEEDstroy AM-40	Nufarm Americas Inc.	228-145	Y
		Hi-Dep	PBI Gordon Corp.	2217-703	N
		2,4-D Amine	Setre (Helena)	5905-72	N
		Barrage LV Ester	Setre (Helena)	5905-504	N
		2,4-D LV4	Setre (Helena)	5905-90	N
		2,4-D LV6	Setre (Helena)	5905-93	N
		Clean Crop Amine 4	UAP-Platte Chem. Co.	34704-5 CA	Y
		Clean Crop Low Vol 6 Ester	UAP-Platte Chem. Co.	34704-125	N
		Salvo LV Ester	UAP-Platte Chem. Co.	34704-609	N
		2,4-D 4# Amine Weed Killer	UAP-Platte Chem. Co.	34704-120	N
		Clean Crop LV-4 ES	UAP-Platte Chem. Co.	34704-124	N
		Savage DF	UAP-Platte Chem. Co.	34704-606	Y
		Cornbelt 4 lb. Amine	Van Diest Supply Co.	11773-2	N
		Cornbelt 4# LoVol Ester	Van Diest Supply Co.	11773-3	N
		Cornbelt 6# LoVol Ester	Van Diest Supply Co.	11773-4	N
		Amine 4	Wilbur-Ellis Co.	2935-512	N
		Lo Vol-4	Wilbur-Ellis Co.	228-139-2935	N
		Lo Vol-6 Ester	Wilbur-Ellis Co.	228-95-2935	N
		Agrisolution 2,4-D LV6	Winflied Solutions, LLC	1381-101	N
		Agrisolution 2,4-D Amine 4	Winfield Solutions, LLC	1381-103	N
		Agrisolution 2,4-D LV4	Winfield Solutions, LLC	1381-102	N

BLM Approved Herbicides and Adjuvants (continued)

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Dicamba	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Dicamba DMA	Albaugh, Inc./Agri Star	42750-40	N
		Vision	Albaugh, Inc.	42750-98	N
		Cruise Control	Alligare, LLC	42750-40-81927	N
		Banvel	Arysta LifeScience N.A. Corp.	66330-276	Y
		Clarity	BASF Ag. Products	7969-137	Y
		Rifle	Loveland Products Inc.	34704-861	Y
		Banvel	Micro Flo Company	51036-289	Y
		Diablo	Nufarm Americas Inc.	228-379	Y
		Vanquish Herbicide	Nufarm Americas Inc.	228-397	Y
		Vanquish	Syngenta	100-884	N
Dicamba + 2,4-D	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Outlaw	Albaugh, Inc./Agri Star	42750-68	N
		Range Star	Albaugh, Inc./Agri Star	42750-55	N
		Weedmaster	BASF Ag. Products	7969-133	Y
		Rifle-D	Loveland Products Inc.	34704-869	N
		KambaMaster	Nufarm Americas Inc.	71368-34	N
		Veteran 720	Nufarm Americas Inc.	228-295	Y
Dicamba + Diflufenzopyr	AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Distinct	BASF Ag. Products	7969-150	N
		Overdrive	BASF Ag. Products	7969-150	N
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of these herbicides is prohibited.					
Diquat	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Reward	Syngenta Crop Prot., Inc.	100-1091	Y
Diuron	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Diuron 80DF	Agriliance, L.L.C.	9779-318	N
		Diuron 80DF	Alligare, LLC	81927-12	Y
		Karmex DF	DuPont	352-692	Y
		Karmex XP	DuPont	352-692	Y
		Karmex IWC	DuPont	352-692	Y
		Direx 4L	DuPont	352-678	Y
		Direx 80DF	Griffin Company	1812-362	Y
		Direx 4L	Griffin Company	1812-257	Y
		Diuron 4L	Loveland Products Inc.	34704-854	Y
		Diuron 80 WDG	Loveland Products Inc.	34704-648	N
		Diuron 4L	Makteshim Agan of N.A.	66222-54	N
		Diuron 80WDG	UAP-Platte Chem. Co.	34704-648	N
		Vegetation Man. Diuron 80 DF	Vegetation Man., LLC	66222-51-74477	N
		Diuron-DF	Wilbur-Ellis	00352-00-508-02935	N
		Diuron 80DF	Winfield Solutions, LLC	9779-318	N

BLM Approved Herbicides and Adjuvants (continued)

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Fluridone	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Avast!	SePRO	67690-30	Y
		Sonar AS	SePRO	67690-4	Y
		Sonar Precision Release	SePRO	67690-12	Y
		Sonar Q	SePRO	67690-3	Y
		Sonar SRP	SePRO	67690-3	Y
Glyphosate	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Aqua Star	Albaugh, Inc./Agri Star	42750-59	Y
		Forest Star	Albaugh, Inc./Agri Star	42570-61	Y
		Gly Star Original	Albaugh, Inc./Agri Star	42750-60	Y
		Gly Star Plus	Albaugh, Inc./Agri Star	42750-61	Y
		Gly Star Pro	Albaugh, Inc./Agri Star	42750-61	Y
		Glyphosate 4 PLUS	Alligare, LLC	81927-9	Y
		Glyphosate 5.4	Alligare, LLC	81927-8	Y
		Glyfos	Cheminova	4787-31	Y
		Glyfos PRO	Cheminova	67760-57	Y
		Glyfos Aquatic	Cheminova	4787-34	Y
		ClearOut 41	Chem. Prod. Tech., LLC	70829-2	N
		ClearOut 41 Plus	Chem. Prod. Tech., LLC	70829-3	N
		Accord Concentrate	Dow AgroSciences	62719-324	Y
		Accord SP	Dow AgroSciences	62719-322	Y
		Accord XRT	Dow AgroSciences	62719-517	Y
		Accord XRT II	Dow AgroSciences	62719-556	Y
		Glypro	Dow AgroSciences	62719-324	Y
		Glypro Plus	Dow AgroSciences	62719-322	Y
		Rodeo	Dow AgroSciences	62719-324	Y
		Mirage	Loveland Products Inc.	34704-889	Y
		Mirage Plus	Loveland Products Inc.	34704-890	Y
		Aquamaster	Monsanto	524-343	Y
		Roundup Original	Monsanto	524-445	Y
		Roundup Original II	Monsanto	524-454	Y
		Roundup Original II CA	Monsanto	524-475	Y
		Honcho	Monsanto	524-445	Y
		Honcho Plus	Monsanto	524-454	Y
		Roundup PRO	Monsanto	524-475	Y
		Roundup PRO Concentrate	Monsanto	524-529	Y
		Roundup PRO Dry	Monsanto	524-505	Y
		Roundup PROMAX	Monsanto	524-579	Y
		GlyphoMate 41	PBI Gordon Corp.	2217-847	Y
		Aqua Neat	Nufarm Americas Inc.	228-365	Y
		Foresters	Nufarm Americas Inc.	228-381	Y
		Razor	Nufarm Americas Inc.	228-366	Y
		Razor Pro	Nufarm Americas Inc.	228-366	Y
		AquaPro Aquatic Herbicide	SePRO Corporation	62719-324-67690	Y
		Rattler	Setre (Helena)	524-445-5905	Y

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Glyphosate - cont.	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Buccaneer	Tenkoz	55467-10	Y
		Buccaneer Plus	Tenkoz	55467-9	Y
		Mirage Herbicide	UAP-Platte Chem. Co.	524-445-34704	Y
		Mirage Plus Herbicide	UAP-Platte Chem. Co.	524-454-34704	Y
		Glyphosate 4	Vegetation Man., LLC	73220-6-74477	Y
Glyphosate + 2,4-D	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Landmaster BW	Albaugh, Inc./Agri Star	42570-62	N
		Campaign	Monsanto	524-351	N
		Landmaster BW	Monsanto	524-351	N
Glyphosate + Dicamba	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Fallowmaster	Monsanto	524-507	N
Hexazinone	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Velpar ULW	DuPont	352-450	N
		Velpar L	DuPont	352-392	Y
		Velpar DF	DuPont	352-581	Y
		Pronone MG	Pro-Serve	33560-21	N
		Pronone 10G	Pro-Serve	33560-21	Y
		Pronone 25G	Pro-Serve	33560-45	N
Hexazinone + Sulfometuron methyl	AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Westar	DuPont Crop Protection	352-626	Y
		Oustar	DuPont Crop Protection	352-603	Y
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of these herbicides is prohibited.					
Imazapic	AZ, CO, ID, MT,ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Panoramic 2SL	Alligare, LLC	66222-141-81927	N
		Plateau	BASF	241-365	N
		Imazapic E 2 SL	Etigra, LLC	79676-65	N
Imazapic + Glyphosate	AZ, CO, ID, MT,ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Journey	BASF	241-417	N
Imazapyr	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Imazapyr 2SL	Alligare, LLC	81927-23	N
		Imazapyr 4SL	Alligare, LLC	81927-24	N
		Ecomazapyr 2SL	Alligare, LLC	81927-22	N
		Arsenal Railroad Herbicide	BASF	241-273	N
		Chopper	BASF	241-296	Y
		Arsenal Applicators Conc.	BASF	241-299	N
		Arsenal	BASF	241-346	N
		Arsenal PowerLine	BASF	241-431	N
		Stalker	BASF	241-398	N
		Habitat	BASF	241-426	Y
		Imazapyr E-Pro 2 - VM & Aquatic Herbicide	Etigra, LLC	81959-8	Y
		Imazapyr E-Pro 4 - Forestry	Etigra, LLC	81959-9	N
		Imazapyr E-Pro 2E - Site Prep & Basal	Etigra, LLC	81959-7	N

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Imazapyr (contd)	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Polaris RR	Nufarm Americas Inc.	241-273-228	N
		Polaris SP	Nufarm Americas Inc.	241-296-228	Y
		Polaris AC	Nufarm Americas Inc.	241-299-228	Y
		Polaris AQ	Nufarm Americas Inc.	241-426-228	Y
		Polaris Herbicide	Nufarm Americas Inc.	241-346-228	N
		SSI Maxim Arsenal 0.5G	SSI Maxim Co., Inc.	34913-23	N
Imazapyr - cont.	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Ecomazapyr 2 SL	Vegetation Man., LLC	74477-6	N
		Imazapyr 2 SL	Vegetation Man., LLC	74477-4	N
		Imazapyr 4 SL	Vegetation Man., LLC	74477-5	N
Imazapyr + Diuron	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Mojave 70 EG	Alligare, LLC	74477-9-81927	N
		Sahara DG	BASF	241-372	N
		Imazuron E-Pro	Etigra, LLC	79676-54	N
		SSI Maxim Topsite 2.5G	SSI Maxim Co., Inc.	34913-22	N
Imazapyr + Metsulfuron methyl	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Lineage Clearstand	DuPont	352-766	N
Imazapyr + Sulfometuron methyl + Metsulfuron methyl	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Lineage HWC	DuPont	352-765	N
		Lineage Prep	DuPont	352-767	N
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of these herbicides is prohibited.					
Metsulfuron methyl	AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA,WY	MSM 60	Alligare, LLC	81927-7	N
		Escort DF	DuPont	352-439	N
		Escort XP	DuPont	352-439	N
		MSM E-AG 60 EG Herbicide	Etigra, LLC	81959-14	N
		MSM E-Pro 60 EG Herbicide	Etigra, LLC	81959-14	N
		Patriot	Nufarm Americas Inc.	228-391	N
		PureStand	Nufarm Americas Inc.	71368-38	N
		Metsulfuron Methyl DF	Vegetation Man., L.L.C.	74477-2	N
Metsulfuron methyl + Chlorsulfuron	AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Cimarron Extra	DuPont	352-669	N
		Cimarron Plus	DuPont	352-670	N
Metsulfuron methyl + Dicamba + 2,4-D	AK, AZ, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Cimarron MAX	DuPont	352-615	N

BLM Approved Herbicides and Adjuvants (continued)

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Picloram	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	Triumph K	Albaugh, Inc.	42750-81	N
		Triumph 22K	Albaugh, Inc.	42750-79	N
		Picloram K	Alligare, LLC	42750-81-81927	N
		Picloram K	Alligare, LLC	81927-17	N
		Picloram 22K	Alligare, LLC	42750-79-81927	N
		Picloram 22K	Alligare, LLC	81927-18	N
		Grazon PC	Dow AgroSciences	62719-181	N
		OutPost 22K	Dow AgroSciences	62719-6	N
		Tordon K	Dow AgroSciences	62719-17	N
		Tordon 22K	Dow AgroSciences	62719-6	N
Picloram + 2,4-D	AZ, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WY	GunSlinger	Albaugh, Inc.	42750-80	N
		Picloram + D	Alligare, LLC	42750-80-81927	N
		Picloram + D	Alligare, LLC	81927-16	N
		Tordon 101M	Dow AgroSciences	62719-5	N
		Tordon 101 R Forestry	Dow AgroSciences	62719-31	N
		Tordon RTU	Dow AgroSciences	62719-31	N
		Grazon P+D	Dow AgroSciences	62719-182	N
		HiredHand P+D	Dow AgroSciences	62719-182	N
		Pathway	Dow AgroSciences	62719-31	N
Sulfometuron methyl	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	SFM 75	Alligare, LLC	81927-26	Y
		Oust DF	DuPont	352-401	N
		Oust XP	DuPont	352-601	Y
		SFM E-Pro 75EG	Etigra, LLC	79676-16	Y
		Spyder	Nufarm Americas Inc.	228-408	Y
		SFM 75	Vegetation Man., L.L.C.	72167-11-74477	Y
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of these herbicides is prohibited.					
Sulfometuron methyl + Chlorsulfuron	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Landmark XP	DuPont	352-645	Y
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide is prohibited.					
Sulfometuron methyl + Metsulfuron methyl	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Oust Extra	DuPont	352-622	N
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS), the aerial application of this herbicide is prohibited.					
Tebuthiuron	AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Spike 20P	Dow AgroSciences	62719-121	Y
		Spike 80DF	Dow AgroSciences	62719-107	Y
		SpraKil S-5 Granules	SSI Maxim Co., Inc.	34913-10	Y

BLM Approved Herbicides and Adjuvants (continued)

ACTIVE INGREDIENT	STATES WITH APPROVAL BASED UPON CURRENT EIS/ROD & COURT INJUNCTIONS	TRADE NAME	MANUFACTURER	EPA REG. NUMBER	CA REG. **
Tebuthiuron + Diuron	AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	SpraKil SK-13 Granular	SSI Maxim Co., Inc.	34913-15	Y
		SpraKil SK-26 Granular	SSI Maxim Co., Inc.	34913-16	Y
Triclopyr	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Triclopyr 4EC	Alligare, LLC	72167-53-74477	Y
		Triclopyr 3	Alligare, LLC	81927-13	Y
		Triclopry 4	Alligare, LLC	81927-11	Y
		Element 3A	Dow AgroSciences	62719-37	Y
		Element 4	Dow AgroSciences	62719-40	Y
		Forestry Garlon XRT	Dow AgroSciences	62719-553	Y
		Garlon 3A	Dow AgroSciences	62719-37	Y
		Garlon 4	Dow AgroSciences	62719-40	Y
		Garlon 4 Ultra	Dow AgroSciences	62719-527	Y
		Remedy	Dow AgroSciences	62719-70	Y
		Remedy Ultra	Dow AgroSciences	62719-552	Y
		Pathfinder II	Dow AgroSciences	62719-176	Y
		Tahoe 3A	Nufarm Americas Inc.	228-384	Y
		Tahoe 3A	Nufarm Americas Inc.	228-518	Y
		Renovate 3	SePRO Corporation	62719-37-67690	Y
		Renovate OTF	SePRO Corporation	67690-42	Y
		Ecotriclopyr 3 SL	Vegetation Man., LLC	72167-49-74477	N
		Triclopyr 3 SL	Vegetation Man., LLC	72167-53-74477	N
Triclopyr + 2,4-D	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Everett	Alligare, LLC	81927-29	Y
		Crossbow	Dow AgroSciences	62719-260	Y
Triclopyr + Clopyralid	AK, AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, SD, TX, UT, WA, WY	Prescott Herbicide	Alligare, LLC	81927-30	Y
		Redeem R&P	Dow AgroSciences	62719-337	Y

*** Refer to the complete label prior to considering the use of any herbicide formulation. Label changes can impact the intended use through, such things as, creation or elimination of Special Local Need (SLN) or 24 (c) registrations, changes in application sites, rates and timing of application, county restrictions, etc.**

**** Just because a herbicide has a Federal registration, and is approved under the current EIS, it may or may not be registered for use in California. This column identifies those formulations for which there is a California registration.**

Adjuvants Approved for Use on BLM Administered Lands

October 10, 2008

Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Surfactant	Non-ionic	Agrisolutions Preference	Agriliance, LLC.	WA Reg. No. 1381-50011
		Aqufact	Aqumix, Inc.	
		Brewer 90-10	Brewer International	
		Baron	Crown (Estes Incorporated)	
		N.I.S. 80	Estes Incorporated	
		Spec 90/10	Helena	
		Optima	Helena	CA Reg. No. 5905-50075-AA
		Induce	Setre (Helena)	CA Reg. No. 5905-50066-AA
		Actamaster Spray Adjuvant	Loveland Products Inc.	WA Reg. No. 34704-50006
		Actamaster Soluble Spray Adj.	Loveland Products Inc.	WA Reg. No. 34704-50001
		Activator 90	Loveland Products Inc.	CA Reg. No. 34704-50034-AA
		LI-700	Loveland Products Inc.	CA Reg. No. 34704-50035
				WA Reg. No. AW36208-70004
		Spreader 90	Loveland Products Inc.	WA Reg. No. 34704-05002-AA
		UAP Surfactant 80/20	Loveland Products Inc.	
		X-77	Loveland Products Inc.	CA Reg. No. 34704-50044
		Red River 90	Red River Specialties, Inc.	
		Cornbelt Premier 90	Van Diest Supply Co.	
		Spray Activator 85	Van Diest Supply Co.	
		Agripharm 90	Walco International	
		R-900	Wilbur-Ellis	
		Super Spread 90	Wilbur-Ellis	WA Reg. No. AW-2935-70016
		Super Spread 7000	Wilbur-Ellis	CA Reg. No. 2935-50170
				WA Reg. No. AW-2935-0002
		Agrisolutions Preference	Winfield Solutions, LLC	WA Reg. No. 1381-50011
	Spreader/Sticker	Agri-Trend Spreader	Agri-Trend	
		TopFilm	Biosorb, Inc.	
		Bind-It	Estes Incorporated	
		Surf-King PLUS	Crown (Estes Incorporated)	
		CWC 90	CWC Chemical, Inc.	
		Cohere	Helena	CA Reg. No. 5905-50083-A
		Attach	Loveland Products Inc.	CA Reg. No. 34704-50026
		Bond	Loveland Products Inc.	CA Reg. No. 36208-50005
		Tactic	Loveland Products Inc.	CA Reg. No. 34704-50041-AA
		Nu-Film-IR	Miller Chem. & Fert. Corp.	
		Lastick	Setre (Helena)	
		Insist 90	Wilbur-Ellis	
		R-56	Wilbur-Ellis	CA Reg. No. 2935-50144

Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Surfactant (contd)	Silicone-based	SilEnergy	Brewer International	
		Silnet 200	Brewer International	
		Bind-It MAX	Estes Incorporated	
		Thoroughbred	Estes Incorporated	
		Aero Dyne-Amic	Helena	CA Reg. No. 5905-50080-AA
		Dyne-Amic	Helena	CA Reg. No. 5095-50071-AA
	Silicone-based - cont.	Kinetic	Setre (Helena)	CA Reg. No. 5905-50087-AA
		Freeway	Loveland Products Inc.	CA Reg. No. 34704-50031
				WA Reg. No. 34704-04005
		Phase	Loveland Products Inc.	CA Reg. No. 34704-50037-AA
		Phase II	Loveland Products Inc.	
		Silwet L-77	Loveland Products Inc.	CA Reg. No. 34704-50043
		Sun Spreader	Red River Specialties, Inc.	
		Sylgard 309	Wilbur-Ellis	CA Reg. No. 2935-50161
		Syl-Tac	Wilbur-Ellis	CA Reg. No. 2935-50167
Oil-based	Crop Oil Concentrate	Brewer 83-17	Brewer International	
		Majestic	Crown (Estes Incorporated)	
		Agri-Dex	Helena	CA # 5905-50094-AA
		Crop Oil Concentrate	Helena	CA Reg. No. 5905-50085-AA
		Crop Oil Concentrate	Loveland Products Inc.	
		Herbimax	Loveland Products Inc.	CA Reg. No. 34704-50032-AA
				WA Reg. No. 34704-04006
		Red River Forestry Oil	Red River Specialties, Inc.	
		R.O.C. Rigo Oil Conc.	Wilbur-Ellis	
		Mor-Act	Wilbur-Ellis	CA Reg. No. 2935-50098
	Methylated Seed Oil	SunEnergy	Brewer International	
		Sun Wet	Brewer International	
		Methylated Spray Oil Conc.	Helena	
		MSO Concentrate	Loveland Products Inc.	CA Reg. No. 34704-50029-AA
		Red River Supreme	Red River Specialties, Inc.	
		Sunburn	Red River Specialties, Inc.	
		Sunset	Red River Specialties, Inc.	
		Hasten	Wilbur-Ellis	CA Reg. No. 2935-50160
				WA Reg. No. 2935-02004
		Super Spread MSO	Wilbur-Ellis	
	Methylated Seed Oil + Organosilicone	Inergy	Crown (Estes Incorporated)	
	Vegetable Oil	Noble	Estes Incorporated	
		Amigo	Loveland Products Inc.	CA Reg. No. 34704-50028-AA
				WA Reg. No. 34704-04002
		Competitor	Wilbur-Ellis	CA Reg. No. 2935-50173
				WA Reg. No. AW-2935-04001

Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Fertilizer-based	Nitrogen-based	Quest	Setre (Helena)	CA Reg. No. 5905-50076-AA
		Dispatch	Loveland Products Inc.	
		Dispatch 111	Loveland Products Inc.	
		Dispatch 2N	Loveland Products Inc.	
		Dispatch AMS	Loveland Products Inc.	
		Flame	Loveland Products Inc.	
		Bronc	Wilbur-Ellis	
		Bronc Max	Wilbur-Ellis	
		Bronc Max EDT	Wilbur-Ellis	
		Bronc Plus Dry EDT	Wilbur-Ellis	WA Reg. No.2935-03002
		Bronc Total	Wilbur-Ellis	
		Cayuse Plus	Wilbur-Ellis	CA Reg. No. 2935-50171
Special Purpose or Utility	Buffering Agent	Buffers P.S.	Helena	CA Reg. No. 5905-50062-ZA
		Spray-Aide	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50006-AA
		Oblique	Red River Specialties, Inc.	
		Tri-Fol	Wilbur-Ellis	CA Reg. No. 2935-50152
	Colorants	Hi-Light	Becker-Underwood	
		Hi-Light WSP	Becker-Underwood	
		Marker Dye	Loveland Products Inc.	
		BullsEye	Milliken Chemical	
		Signal	Precision	
	Compatibility/ Suspension Agent	E Z MIX	Loveland Products Inc.	CA Reg. No. 36208-50006
		Support	Loveland Products Inc.	WA Reg. No. 34704-04011
		Blendex VHC	Setre (Helena)	
	Deposition Aid	Cygnet Plus	Brewer International	CA Reg. No. 1051114-50001
		Poly Control 2	Brewer International	
		CWC Sharpshooter	CWC Chemical, Inc.	
		ProMate Impel	Helena	
		Pointblank	Helena	CA Reg. No. 52467-50008-AA-5905
		Strike Zone DF	Helena	CA Reg. No. 5905-50084-AA
		Compadre	Loveland Products Inc.	CA Reg. No. 34704-50050
				WA Reg. No. 34704-06004
		Intac Plus	Loveland Products Inc.	
		Liberate	Loveland Products Inc.	CA Reg. No. 34704-50030-AA
				WA Reg. No. 34704-04008
		Reign	Loveland Products Inc.	CA Reg. No. 34704-50045
				WA Reg. No. 34704-05010
		Weather Gard	Loveland Products Inc.	CA Reg. No. 34704-50042-AA
		Mist-Control	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50011-AA
		Secure Ultra	Red River Specialties, Inc.	
		Sta Put	Setre (Helena)	CA Reg. No. 5905-50068-AA
		Agripharm Drift Control	Walco International	
		Bivert	Wilbur-Ellis	CA Reg. No. 2935-50163
		Coverage G-20	Wilbur-Ellis	
		EDT Concentrate	Wilbur-Ellis	

Adjuvant Class	Adjuvant Type	Trade Name	Manufacturer	Comments
Special Purpose or Utility (contd)	Defoaming Agent	Defoamer	Brewer International	
		Fighter-F 10	Loveland Products Inc.	
		Fighter-F Dry	Loveland Products Inc.	
		Foam Fighter	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50005-AA
		Foam Buster	Setre (Helena)	CA Reg. No. 5905-50072-AA
		Cornbelt Defoamer	Van Diest Supply Co	
		No Foam	Wilbur-Ellis	CA Reg. No. 2935-50136
	Diluent/Deposition Agent	Improved JLB Oil Plus	Brewer International	
		JLB Oil Plus	Brewer International	
Special Purpose or Utility - cont.	Diluent/Deposition Agent - cont.	Hy-Grade I	CWC Chemical, Inc	
		Hy-Grade EC	CWC Chemical, Inc	
		Red River Basal Oil	Red River Specialties, Inc.	
	Foam Marker	Align	Helena	
		R-160	Wilbur-Ellis	
	Invert Emulsion Agent	Redi-vert II	Wilbur-Ellis	CA Reg. No. 2935-50168
	Tank Cleaner	Wipe Out	Helena	
		All Clear	Loveland Products Inc.	
		Tank and Equipment Cleaner	Loveland Products Inc.	
		Kutter	Wilbur-Ellis	
		Neutral-Clean	Wilbur-Ellis	
		Cornbelt Tank-Aid	Van Diest Supply Co.	
	Water Conditioning	Rush	Crown (Estes Incorporated)	
		Blendmaster	Loveland Products Inc.	
		Choice	Loveland Products Inc.	CA Reg. No. 34704-50027-AA WA Reg. No. 34704-04004
		Choice Xtra	Loveland Products Inc.	
		Choice Weather Master	Loveland Products Inc.	CA Reg. No. 34704-50038-AA
		Cut-Rate	Wilbur-Ellis	

ATTACHMENT #5
DOI-BLM-CO-N010-2009-0025-EA
BLM Approved Herbicide Rates

Herbicide Formulations Used on BLM Administered Lands

Herbicide Active Ingredient	Programmatic Veg EIS Risk Assessment Summary	Sample Trade Name/ Form. Concentration	Typical Application Rate/Acre		Maximum Application Rate/Acre	
			A.I. or A.E.	Formulated Product	A.I. or A.E.	Formulated Product
Bromacil	BLM Updated	Hyvar X	4.0 lbs. a.i.	5.0 lbs.	12.0 lbs. a.i.	15 lbs.
		Hyvar XL		2.0 gallons		6.0 gallons
Chlorsulfuron	BLM Update	Telar XP	0.047 lb. a.i.	1.0 ounce	0.141 lb. a.i.	3.0 ounces
Clopyralid	Forest Service (1999)	Transline	0.35 lb. a.e.	15.0 fluid ounces	1.0 lb. a.e.*	2.66 pints *
2,4-D	Forest Service (1998)	3.8 lbs. a.e. form	1.0 lb. a.e.	1.0 quarts	1.9 lbs. a.e.	2.0 quarts
		5.5 lbs. a.e. form		1.5 pints		3.0 pints
Dicamba	Forest Service (2004)	Banvel	0.25 lb. a.e.	0.5 pint	2.0 lbs. a.e.	2.0 quarts
Diuron	BLM Update	Diuron 4L	6.0 lbs. a.i.	1.5 gallons	20.0 lbs. a.i.	5.0 gallons
		Diuron 80DF		7.5 lbs.		25 lbs.
Glyphosate	Forest Service (2003)	3.0 lbs. a.e. form	2.0 lbs. a.e.	2.66 quarts	7.0 lbs. a.e.	9.3 quarts
		4.0 lbs. a.e. form		2.0 quarts		7.0 quarts
Hexazinone	Forest Service (1997)	Velpar L	1.0 lbs. a.i.	0.5 gallon	8.0 lbs. a.i.	4.0 gallons
		Velpar DF		2.66 lbs.		10.66 lbs.
Imazapyr	Forest Service (2004)	Arsenal	0.45 lb. a.e.	1.8 pints	1.5 lbs. a.e.	3.0 quarts
Metsulfuron methyl	Forest Service (2004)	Escort XP	0.03 lb. a.i.	0.8 ounce	0.15 lb. a.i.	4.0 ounces
Picloram	Forest Service (2003)	Tordon 22K	0.35 lb. a.e.	1.4 pints	1.0 lb. a.e.	2.0 quarts
Sulfometuron methyl	New BLM Prepared	Oust XP	0.14 lb. a.i.	3.0 ounces	0.38 lb. a.i.	8.1 ounces
Tebuthiuron	BLM Updated	Spike 20P	0.5 lb. a.i.	2.5 lbs.	4.0 lbs. a.i.	20 .0 lbs.
		Spike 80DF		0.625 lb.		5.0 lbs.
Triclopyr	Forest Service (2003)	Garlon 4	1.0 lb. a.e.	1.0 quart	10.0 lbs. a.e.	2.5 gallons
		Garlon 3A		1.33 quarts		3.3 gallons
		Garlon XRT		0.63 quarts		1.58 gallons
Diquat	New BLM Prepared	Reward	1.0 lb. a.i.	1.1 quarts	4.0 lbs. a.i.	4.4 quarts

Herbicide Active Ingredient	Programmatic Veg EIS Risk Assessment Summary	Sample Trade Name/ Form. Concentration	Typical Application Rate/Acre		Maximum Application Rate/Acre	
			A.I. or A.E.	Formulated Product	A.I. or A.E.	Formulated Product
Diflufenzopyr + Dicamba	New BLM Prepared	Overdrive	0.2625 lb. a.e.	6.0 ounces	0.35 lb. a.e.	8.0 ounces
Imazapic	New BLM Prepared	Plateau AS	0.0313 lb. a.e.	2.0 fluid ounces	0.1875 lb. a.e.	12.0 fluid ounces
Fluridone	New BLM Prepared					
	Ecological R.A.	Sonar A.S.	0.15 lb. a.i.	13.1 fluid ounces	1.3 lbs. a.i.	1.3 quarts
		Sonar Q		8.2 lbs.		26.0 lbs.
	Human Health R.A.	Sonar A.S.	0.41 lb. a.i.	4.8 fluid ounces	1.3 lbs. a.i.	1.3 quarts
		Sonar Q		3.0 lbs.		26.0 lbs.

*** NOTE:**
The 1999 Risk Assessment prepard by the Forest Service on Clopyralid analyzed a maximum rate above what is currently allowed on the label, by a margin of 1/2 - Maximum labeled Rate of Transline = 1.33 pints/Acre).

Within the PEIS - Volume I - Pages 4-56 to 4-62, you will find the reference where the "minimum" and "maximum" values for the Forest Service risk assessments are identified.

ATTACHMENT #6
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Standard Operating Procedures Modified for LSFO

BLM Activity	Preventative Measures
Project Planning	• Incorporate prevention measures into project layout and design, alternative evaluation, and project decisions to prevent the introduction or spread of weeds. • Determine prevention and maintenance needs, including the use of herbicides, at the onset of project planning. • Before ground-disturbing activities begin, inventory weed infestations and prioritize areas for treatment in project operating areas and along access routes. • Remove sources of weed seed and propagules to prevent the spread of existing weeds and new weed infestations. • Pre-treat high-risk sites for weed establishment and spread before implementing projects. • Post weed awareness messages and prevention practices at strategic locations such as trailheads, roads, boat launches, and public land kiosks. • Coordinate project activities with nearby herbicide applications to maximize the cost effectiveness of weed treatments.
Project Development	• Minimize soil disturbance to the extent practical, consistent with project objectives. • Avoid creating soil conditions that promote weed germination and establishment. • To prevent weed germination and establishment, retain native vegetation in and around project activity areas and keep soil disturbance to a minimum, consistent with project objectives. • Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely. • Prevent the introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material. • Inspect material sources on site, and ensure that they are weed-free before use and transport.

Project Development (continued)	• Prevent weed establishment by not driving through weed-infested areas. • Inspect and document weed establishment at access roads, cleaning sites, and all disturbed areas; control infestations to prevent weed spread within the project area. • Avoid acquiring water for dust abatement where access to the water is through weed-infested sites. • Clean all equipment before leaving the project site if operating in areas infested with weeds. • Inspect and treat weeds that establish at equipment cleaning sites. • Ensure that rental equipment is free of weed seed.
Revegetation	• Include weed prevention measures, including project inspection and documentation, in operation and reclamation plans. • Retain bonds until reclamation requirements, including weed treatments, are completed, based on inspection and documentation. • To prevent conditions favoring weed establishment, reestablish vegetation on bare ground caused by project disturbance as soon as possible using either natural recovery or artificial techniques. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. • Maintain stockpiled, uninfested material in a weed-free condition. • Use native material where appropriate and feasible. Use certified weed-free hay or straw where certified materials are required and/or are reasonably available. • Evaluate options, including closure, to regulate the flow of traffic on sites where desired vegetation needs to be established. Sites could include road and trail rights-of-way (ROW), and other areas of disturbed soils.

Standard Operating Procedures for Applying Herbicides:

Resource Element	**Standard Operating Procedure**
Guidance Documents	BLM Handbook H-9011-1 (Chemical Pest Control); and manuals 1112 (Safety), 9011 (Chemical Pest Control), 9012 (Expenditure of Rangeland Insect Pest Control Funds), 9015 (Integrated Weed Management), and 9220 (Integrated Pest Management)

General	• Prepare operational and spill contingency plan in advance of treatment. • Conduct a pretreatment survey before applying herbicides. • Select herbicide that is least damaging to the environment while providing the desired results. • Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures. • Apply the least amount of herbicide needed to achieve the desired result. • Follow all herbicide product label information. • Have licensed applicators apply herbicides. • Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas. • Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners. • Notify adjacent landowners prior to treatment when applicable. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Avoid accidental direct spray and spill conditions to minimize risks to resources. • Consider surrounding land uses before aerial spraying. • Take precautions to minimize drift by not applying herbicides when winds exceed >10 mph (>6 mph for aerial applications), or a serious rainfall event is imminent. • Use drift control agents and low volatile formulations. • Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas. • Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. • Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Clean OHVs to remove seeds.

Air Quality See Manual 7000 (Soil, Water, and Air Management)	• Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. • Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph (>6 mph for aerial applications) or rainfall is imminent. • Use drift reduction agents, as appropriate, to reduce the drift hazard. • Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).
Soil See Manual 7000 (Soil, Water, and Air Management)	• Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. • Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility. • Do not apply granular herbicides on slopes of more than 15% where there is the possibility of runoff carrying the granules into non-target areas.
Water Resources See Manual 7000 (Soil, Water, and Air Management)	• Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. • Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity. • Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body. • Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies. • Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies.
Wetlands and Riparian Areas	• Use a selective herbicide and a wick or backpack sprayer. • Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications.

Vegetation See Handbook H-4410-1 (National Range Handbook), and manuals 5000 (Forest Management) and 9015 (Integrated Weed Management)	• Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes. • Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities. • Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, to maintain desirable vegetation on the treatment site.
Pollinators	• Complete vegetation treatments seasonally before pollinator foraging plants bloom. • Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily. • Make special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants (if invasive species) and in their habitats.
Fish and Other Aquatic Organisms See manuals 6500 (Wildlife and Fisheries Management) and 6780 (Habitat Management Plans)	• Use appropriate buffer zones based on label and risk assessment guidance. • Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used, and use spot rather than broadcast or aerial treatments.
Wildlife See manuals 6500 (Wildlife and Fisheries Management) and 6780 (Habitat Management Plans)	• Use herbicides of low toxicity to wildlife, where feasible. • Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area. • Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife.

Threatened, Endangered, and Sensitive Species See Manual 6840 (Special Status Species)	• Survey for special status species before treating an area. Consider effects to special status species when designing herbicide treatment programs. • Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants. • Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for special status species in area to be treated.
Livestock See Handbook H-4120-1 (Grazing Management)	• Whenever possible and whenever needed, schedule treatments when livestock are not present in the treatment area. Design treatments to take advantage of normal livestock grazing rest periods, when possible. • As directed by the herbicide product label, remove livestock from treatment sites prior to herbicide application, where applicable. • Avoid use of diquat in riparian pasture while pasture is being used by livestock. • Notify permittees of the herbicide treatment project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. • Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary.
Wild Horses and Burros	• Use herbicides of low toxicity to wild horses and burros, where feasible. • Remove wild horses and burros from identified treatment areas prior to herbicide application, in accordance with herbicide product label directions for livestock. • Take into account the different types of application equipment and methods, where possible, to reduce the probability of contaminating non-target food and water sources.

Cultural Resources and Paleontological Resources See handbooks H-8120-1 (Guidelines for Conducting Tribal Consultation) & H-8270-1 (General Procedural Guidance for Paleontological Resource Management), & manuals 8100 (The Foundations for anaging Cultural Resources), 8120 (Tribal Consultation Under Cultural Resource Authorities), & 8270 (Paleontological Resource Management)	• Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act and state protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. • Follow BLM Handbook H-8270-1 (General Procedural Guidance for Paleontological Resource Management) to determine known Condition I and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. • Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments.
Visual Resources See handbooks H-8410-1 (Visual Resource Inventory) and H-8431-1 (Visual Resource Contrast Rating), and manual 8400 (Visual Resource Management)	• Minimize the use of broadcast foliar applications in sensitive watersheds to avoid creating large areas of browned vegetation. • Consider the surrounding land use before assigning aerial spraying as an application method. • If the area is a Class I or II visual resource, ensure that the change to the characteristic landscape is low and does not attract attention (Class I), or if seen, does not attract the attention of the casual viewer (Class II). • Lessen visual impacts by: 1) designing projects to blend in with topographic forms; 2) leaving some low-growing trees or planting some low-growing tree seedlings adjacent to the treatment area to screen short-term effects; and 3) revegetating the site following treatment. • When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established Visual Resource Management (VRM) objectives.

Wilderness and Other Special Areas See handbooks H-8550-1 (Management of Wilderness Study Areas (WSAs)), and H- 8560-1 (Management of Designated Wilderness Study Areas), and Manual 8351 (Wild and Scenic Rivers)	• Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area. • Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation. • Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration. • Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds. • Use the "minimum tool" to treat noxious and invasive vegetation, relying primarily on the use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock. • Use chemicals only when they are the minimum method necessary to control weeds spreading within the wilderness or threatening lands outside the wilderness. • Implement herbicide treatments during periods of low human use, where feasible. • Address wilderness and special areas in management plans.
Recreation See Handbook H-1601-1 (Land Use Planning Handbook, Appendix C)	• Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. • Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. • Adhere to entry restrictions identified on the herbicide product label for public and worker access. • Post signs noting exclusion areas and the duration of exclusion, if necessary. • Use herbicides during periods of low human use, where feasible.

Social and Economic Values	• Consider surrounding land use before selecting aerial spraying as a method, and avoid aerial spraying near agricultural or densely-populated areas. • Post treated areas and specify reentry/rest times, if appropriate. • Notify grazing permittees of livestock restrictions in treated areas, if necessary, as per herbicide product label instructions. • Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. • Control public access until potential treatment hazards no longer exist, per herbicide product label instructions. • Use spot applications or low-boom broadcast applications where possible to limit the probability of contaminating non-target food and water sources, especially vegetation over areas larger than the treatment area. • Consult with Native American tribes and Alaska Native groups to locate any areas of vegetation that are of significance to the tribes and Native groups and that might be affected by herbicide treatments. • To the degree possible within the law, hire local contractors and workers to assist with herbicide application projects and purchase materials and supplies, including chemicals, for herbicide treatment projects through local suppliers. • To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an integrated pest management program for projects proposing local use of herbicides.
Rights-of-way	• Coordinate vegetation management activities where joint or multiple use of a ROW exists. • Notify other public land users within or adjacent to the ROW proposed for treatment.
Human Health and Safety	• Establish a buffer between treatment areas and human residences based on guidance given in the HHRA, with a minimum buffer of ¼ mile for aerial applications and 100 feet for ground applications, unless a written waiver is granted. • Observe restricted entry intervals specified by the herbicide product label. • Contain and clean up spills and request help as needed. • Secure containers during transport. • Dispose of unwanted herbicides promptly and correctly.

ATTACHMENT #7
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Mitigation Measures

Resource	Mitigation Measures
Air Quality	None proposed
Soil Resources	None proposed
Water Resources and Quality	• Establish appropriate (herbicide-specific) buffer zones to downstream water bodies, habitats, and species/populations of interest. • Areas with potential for groundwater for domestic or municipal water use shall be evaluated to estimate vulnerability to potential groundwater contamination, and appropriate mitigation measures shall be developed if such an area requires the application of herbicides and cannot otherwise be treated with nonchemical methods.
Wetland and Riparian Areas	• See mitigation for Water Resources and Quality and Vegetation.
Vegetation	• Minimize the use of terrestrial herbicides (especially bromacil, diuron, and sulfometuron methyl) in watersheds with down gradient ponds and streams if potential impacts to aquatic plants are identified. • Establish appropriate (herbicide-specific) buffer zones around downstream water bodies, habitats, and species/populations of interest. Consult the ecological risk assessments (ERAs) prepared for the PEIS for more specific information on appropriate buffer distances under different soil, moisture, vegetation, and application scenarios. • Limit the aerial application of chlorsulfuron and metsulfuron methyl to areas with difficult land access, where no other means of application are possible. Do not apply sulfometuron methyl aerially.
Fish and Other Aquatic Organisms	• Limit the use of diquat in water bodies that have native fish and aquatic resources. • Limit the use of terrestrial herbicides in watersheds with characteristics suitable for potential surface runoff, and have fish-bearing streams, during periods when fish are in life stages most sensitive to the herbicide(s) used.

Fish and Other Aquatic Organisms (continued)	• Implement all conservation measures for aquatic animals presented in the LSFO Biological Assessment and all applicable conservation measures in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment*. • Establish appropriate herbicide-specific buffer zones for water bodies, habitats, or fish or other aquatic species of interest (see Appendix C and recommendations in individual ERAs). • Avoid using the adjuvant R-11® in aquatic environments and either avoid using glyphosate formulations containing the surfactant POEA or seek to use formulations with the least amount of POEA to reduce risks to aquatic organisms.
Wildlife (inlcluding Threatened and Endangered Species, Species of Concern)	• To minimize risks to terrestrial wildlife, do not exceed the typical application rate for applications of dicamba, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr, where feasible. • Minimize the size of application areas, where practical, when applying 2,4-D, bromacil, diuron, and Overdrive® to limit impacts to wildlife, particularly through contamination of food items. • Where practical, limit glyphosate and hexazinone to spot applications in rangeland and wildlife habitat areas to avoid contamination of wildlife food items. • Avoid using the adjuvant R-11® in aquatic environments and either avoid using glyphosate formulations containing the surfactant POEA or seek to use formulations with the least amount of POEA to reduce risks to amphibians and aquatic organisms. • Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (see Section 3.3) to limit contamination of offsite vegetation, which may serve as forage for wildlife. • Do not aerially apply diquat directly to wetlands or riparian areas. • To protect special status species, implement all conservation measures in the LSFO Biological Assessment and all applicable conservation measures for terrestrial animals presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment*.

Livestock	• Minimize potential risks to livestock by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible. • Do not apply 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, or triclopyr across large application areas, where feasible, to limit impacts to livestock, particularly through the contamination of food items. • Where feasible, limit glyphosate and hexazinone to spot applications in rangeland. • Do not aerially apply diquat directly to wetlands or riparian areas used by livestock. • Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones to limit contamination of off-site rangeland vegetation.
Wild Horses and Burros	• Minimize potential risks to wild horses and burros by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible, in areas associated with wild horse and burro use. • Consider the size of the application area when making applications of 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, and triclopyr in order to reduce potential impacts to wild horses and burros. Where practical, limit glyphosate and hexazinone to spot applications in rangeland. • Apply herbicide label grazing restrictions for livestock to herbicide treatment areas that support populations of wild horses and burros. • Do not apply bromacil or diuron in grazing lands within herd management areas (HMAs), and use appropriate buffer zones identified in Tables 4-12 and 4-14 in Chapter 4 of the Final PEIS to limit contamination of vegetation in off-site foraging areas. • Do not apply 2,4-D, bromacil, or diuron in HMAs during the peak foaling season (March through June, and especially in May and June), and do not exceed the typical application rate of Overdrive® or hexazinone in HMAs during the peak foaling season in areas where foaling is known to take place.
Paleontological and Cultural Resources	• Do not exceed the typical application rate when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr in known traditional use areas.

Paleontological and Cultural Resources (continued)	• Avoid, to the extent possible, applying bromacil or tebuthiuron aerially in known traditional use areas. • Limit diquat applications to areas away from high residential and traditional use areas to reduce risks to Native Americans and Alaska Natives.
Visual Resources	None proposed
Wilderness and Other Special Areas	Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety).
Recreation	Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety).
Health and Safety	• Use the typical application rate, where feasible, when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr to reduce risk to occupational and public receptors. • Avoid applying bromacil and diuron aerially. Do not apply sulfometuron methyl aerially. • Limit application of chlorsulfuron via ground broadcast applications at the maximum application rate. • Limit diquat application to ATV, truck spraying, and boat applications to reduce risks to occupational receptors; limit diquat applications to areas away from high residential and subsistence use to reduce risks to public receptors. • Evaluate diuron applications on a site-by-site basis to avoid risks to humans. There appear to be few scenarios where diuron can be applied without risk to occupational receptors. • Do not apply hexazinone with an over-the-shoulder broadcast applicator.